

NOTES ON CAVALRY TACTICS,
ORGANIZATION, ETC.

BY

A CAVALRY OFFICER.

LONDON:

C. KEGAN PAUL & CO., 1, PATERNOSTER SQUARE.

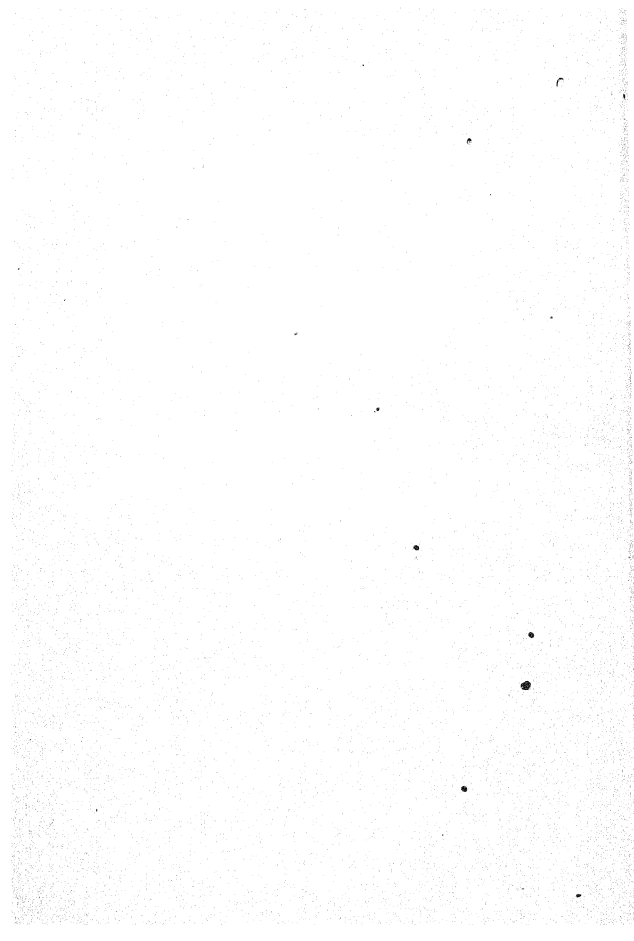
PRINTED SE 1878

C 25 11

9231.

CONTENTS.

| CHAPTER | | PAGE |
|---------|--|------|
| I. | CAVALRY ON THE FIELD OF BATTLE ... | 1 |
| II. | EMPLOYMENT OF FIRE-ARMS. MINOR TACTICS ... | 112 |
| III. | ARMS, EQUIPMENT, AND ORGANIZATION ... | 212 |



INTRODUCTION.

THE following pages are an attempt to set forth the principles which should govern the action of cavalry in war, as deduced from the campaigns of 1866 and 1877, after long and careful study. In most cases I have endeavoured to fortify my own deductions by quoting the opinions of various distinguished authorities on tactics.

It has been my endeavour (however imperfectly carried out) to show, first, what it is possible for cavalry to do, and in what manner they may be employed to the greatest advantage—to demonstrate, in fact, the proper tactical employment of the arm; secondly, to indicate the modifications in organization and equipment which appear to be necessary to enable it to act in the manner previously laid down.

Tactics and organization are inseparable, but the last should be made entirely subservient to the first. Out of three chapters, then, the first and second are devoted to tactics, as it is necessary to understand exactly what cavalry are expected to do before proceeding to consider how they are to be organized so as to perform their work in the best possible manner. On the other hand, one has to understand what sort of a machine is being made use of;

it has, accordingly, been necessary sometimes to consider organization while investigating tactics.

My readers will, of course, understand that I do not imagine that perfection consists in an exact adherence to the forms and system I have proposed. On the other hand, the principles on which they are based I hold to be true, and an observance of them essential for the development of the real power of cavalry.

The tactics and formations of cavalry up to the present day are practically identical with those of a hundred years ago, and this notwithstanding the entire revolution which has taken place in infantry and artillery. These changes are almost entirely due to the successive improvements that have been made in fire-arms, both large and small; and, formidable as these now are, they have by no means yet reached their utmost development. The time has certainly come for seriously considering whether some modification cannot be introduced into the tactics of cavalry, by which they may be enabled to cope as successfully as of old with the other arms. If this is impossible, they will soon become (as, indeed, some have already been bold enough to assert) obsolete on the field of battle.

The opinions of authorities on tactics are sufficiently clear. One of them says—

Page 118,
"Précis of
Modern
Tactics."
Major
Home,
R.E.

"The action of cavalry on the actual battle-field is by no means a thing of the past. The use of cavalry with skill at the right moment and in the right numbers has always been considered one of the most difficult problems in war. Modern arms have increased this difficulty manifold, but to say the day of cavalry on the field of battle is past, is merely another way of saying that the knowledge of how it should be used is wanting."

When it was discovered that infantry could not remain in closed bodies under breech-loading fire, but were forced

to extend for existence' sake, it became tolerably certain that closed bodies of cavalry also were inadmissible under the same conditions, and it would naturally follow that the same measure which gave relief to the infantry would have equal effect if applied to the cavalry. It is true that a line of extended infantry can seek cover from the enemy's bullets, an advantage denied to cavalry; on the other hand, an extended line of horsemen can rush upon the foe with great velocity, and it is not unreasonable to suppose that their rapid motion and wider intervals will compensate to a great extent for the want of that shelter of which an infantry soldier avails himself on all possible occasions.

The use of extended order in the attack has, for the first time, become permissible to British cavalry by the new regulations. In them, however, it appears only to be considered appropriate for the attack on artillery, and its advantages are partly neutralized by the direction to close to the centre, thus assuming, as nearly as may be, the original formation at the moment of making the final rush. The degree of extension laid down is also unnecessarily great.

No provision has yet been made for mitigating the far more serious effect of infantry breech-loading fire, which must, nevertheless, be sometimes braved by cavalry, if it is to retain its position as a fighting arm.

In order to develop to its fullest extent the power of attacking with extended lines, it is necessary, first of all, to adopt a formation in single ranks. This formation has frequently been advocated with a view of increasing the efficiency of cavalry, even when contending with the same arm. It has been pointed out that the present rear rank can be of no direct assistance to the front rank, and only increases its strength by "a movement of disorder;"*

* The Duke of Wellington.

also, that the formation in single rank doubles at once, the available number of reserves, a point which is of more importance to cavalry than to any other arm. Examples, too, are not wanting of cavalry in single rank having obtained successes in every sort of combat. But the strongest argument in its favour at the present day, and one which even the most ardent supporters of double rank will hardly deny, is the great decrease in losses from infantry and artillery fire which a single-rank formation would certainly effect.

A moderate amount of extension can be assumed from single rank with great ease and without disorder; the large number of reserves is a powerful advantage; and, lastly, the speed with which cavalry in such formation can dash upon the enemy, stamps it as that most fitted for an attack against troops armed with the destructive weapons now universally introduced.

Such charges would then present the spectacle of several lines of cavalry in extended order hurling themselves, one after another, upon the enemy—a very different thing from the attack of a solid line of horsemen in the present dense and heavy formation.

The principles which a careful study of the lessons in tactics conveyed to us in the late wars has induced me to lay down for the action of cavalry in battle, are:—

First, that infantry and artillery, more particularly the former, should always be assailed in extended order. A very great amount of extension is, however, unnecessary, and should be avoided.

Secondly, the normal formation of cavalry must be in single rank. This is in itself a partial defence against heavy losses; it also facilitates extension and provides a large number of reserves, which are necessary to give effect to attacks in extended order. This formation, pro-

perly understood, is superior to the present, even for purely cavalry combats.

Thirdly, the attack and preliminary advance must be made as rapidly as possible. Cavalry must be prepared, under some circumstances, to gallop long distances when advancing to the attack; for, when the fire of modern weapons has to be encountered, every second saved means many men's lives spared. Single rank and extended order will allow of a high rate of speed being reached and maintained, provided the horses are not overweighted.

Although the adoption of such tactics may enable cavalry to resume their proper place with regard to the other arms, and to share habitually in the glory to be acquired on battle-fields, yet the acknowledged value of the arm, as the "eyes and ears" of an army, must not for a moment be lost sight of. The important duties of the cavalry divisions necessarily take them to a great distance from their infantry, and although the primary weapon of the cavalry soldier is the sabre or lance, he must not be above having recourse to fire-arms when no other course lies open to him. In order to secure a higher degree of efficiency for the cavalry in this respect, as well as to avoid as much as possible injuring the spirit of the men, by making an extensive training in the use of fire-arms imperative on all, I have advocated the introduction of a class of skirmishers and scouts, who would form an integral part of each section, and be specially armed and trained in accordance with the work required of them.

The second chapter deals with fighting on foot and minor tactics generally, in which fire-arms play a considerable part.

With regard to the details of a reformed organization gone into in the third chapter, it is impossible to describe the feeling of hopelessness and dismay which comes over

one when entering upon such a task as I have here attempted. Who can hope to move the dead weight of professional opposition and apathy, which so successfully resists all efforts of this nature ?

I have endeavoured to be as brief as possible, and have taken most pains in attempting to solve the really vital question of weight. It has, of course, been impossible to enter on the question of recruit supply. This is a matter which affects equally the existence of the whole of the army in all its branches, whereas these notes have reference only to one particular arm.

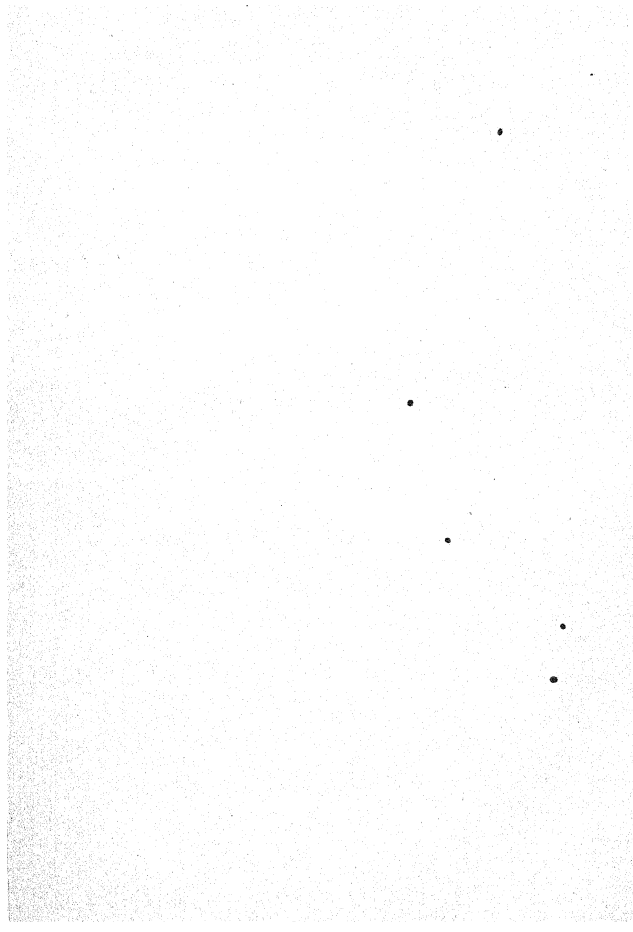
Whatever merit any of my suggestions may possess, at least they do not pretend to that of originality. My aim has been, not to invent, but to draw just conclusions from known premises. I have endeavoured to methodize, and put down as clearly as my inexperience in authorship will allow, the hardly formed ideas of far more able and experienced men than myself, who, absorbed in the consideration of other and perhaps more important problems, and, moreover, not being themselves cavalry soldiers, have only deigned to give a passing thought to the subjects here discussed.

One word in conclusion. It may be said that I have not adduced in the following pages a single instance of the many failures of cavalry against infantry, while making a great deal of the celebrated charge at Mars la Tour—the sole instance, if we except Langensalza, of cavalry having obtained a decided success against the breech-loader. In reply to this, it must be explained that, in the first place, it was in no way an object to show what cavalry had *not* done. It is acknowledged that cavalry, in their present antique formation, can hardly attack modern infantry with any reasonable prospect of obtaining a real advantage. That even with this drawback cavalry have succeeded twice,

proves that victory is for it not altogether impossible. There is therefore every encouragement to adopt such tactics and such organization as will render success, under favourable conditions, no longer problematical and only to be purchased at a heavy sacrifice, but tolerably certain, and obtainable without great losses.

I have, in consequence, principally occupied myself with the endeavour to decide what tactics and organization are most suitable at the present day, without bringing forward what may happen under a system no longer adapted to our requirements. If my deductions are correct, the system suggested, or one constructed on the same principles, will not only enable cavalry to sweep victoriously over future battle-fields, but will also render it more formidable in contests with the same arm, and tend to increase its efficiency in the numerous and important duties which are not directly connected with its action as a fighting machine.

31st March, 1876.



NOTES ON CAVALRY TACTICS, ORGANIZATION, ETC.

CHAPTER I.

CAVALRY ON THE FIELD OF BATTLE.

AN idea has sprung up and is widely spread among all ranks and arms of the service, even, I believe, among cavalry officers themselves, that cavalry has seen its best, if not its last days, as an effective arm on the field of battle. This idea is, however, by no means a new one; it has grown and strengthened with the improvement of fire-arms, until I fear many of the general officers in the British service now think that, when it comes to fighting, the best thing they could do with their cavalry would be to remove it as far as possible from the scene of action.

In our army also, the civilian element and civilian interference is so conspicuous that it is no wonder if we occasionally hear cries for the reduction, or even total extinction, of what is by most non-military men considered a showy and expensive arm, already obsolete on the actual battle-field; and certainly, if the duties of cavalry are in future to be confined to scouting and outpost work and the

collection of intelligence, infinitely important as these are, the days of cavalry proper would be numbered, as such duties may be as well or better performed by mounted infantry on the American model—a far cheaper arm, and one that can be turned to a variety of uses.

It is true that some recent military writers have, and justly, ascribed great value to the action of cavalry in the field; and the course pursued by the Prussians in largely increasing their cavalry after the campaign of 1866—conduct which was amply justified by the advantages they reaped by their means in the war with France—shows that the leading military nation of Europe does not incline to the views above alluded to.

It cannot be said, however, that this settles the question in favour of cavalry, for the German horsemen were more particularly conspicuous for the way in which they performed their scouting and outpost duties, and the admirable style in which they covered the advancing armies; and it is quite possible that an equal number of mounted infantry, equally well trained to the work, would have done as much. But I believe that there are lessons to be learnt from that war, which, if properly understood, will lead us to the conclusion that it is only necessary to adapt cavalry tactics to modern requirements for it to become essential, as a *fighting* arm, to every force that takes the field against an enemy.

That the cherished theory of the helplessness of cavalry against good infantry was untrue up to the time of the introduction of the breech-loader is patent to every unbiased student of military history.

It is true that the French cavalry in the Peninsular and Waterloo campaigns never broke a British square; but that British and German horsemen broke French squares, when properly led, is also true, as history clearly shows.

Cavalry and artillery alone have been known to defeat large bodies of good infantry, well provided with guns, and backed, too, by cavalry of their own.

Such was the case at the celebrated battle of Fère Champenoise, which took place on the 25th March, 1814, when the Austrian and Russian horse, amounting to 22,000, with 128 pieces of cannon, drove before them the corps of Marmont, consisting of 18,000 infantry and 5000 cavalry, with 84 guns. The French were all veteran troops; yet Marmont's squares were broken and his guns captured by the impetuous horsemen, who, it is said, fired neither carbine nor pistol that day, performing all their work with the sabre and lance alone. Night only saved the shattered remnant of the French from utter destruction. This fight was the turning point of the campaign, since it opened the way to Paris, which capitulated four days afterwards.

The cavalry of Frederick the Great, under Seidlitz "the Incomparable," probably the greatest cavalry leader the world ever saw, were accustomed to ride over infantry in any and every formation; and the French cavalry in later times, under Kellermann and Murat, did great things. That these horsemen failed afterwards to pierce our battalions is due not so much to the excellence of the infantry, splendid soldiers as these were, as to the timid and irresolute counsels that prevailed among the French cavalry officers of that day. It was among these that the wild and ridiculous theory was first started, that the *horses* were afraid of the noise and smoke of infantry fire, and that they shrank from the flashes of the muskets and the gleaming bayonets! It has been shrewdly observed that horses only *began* to be afraid of these things about the beginning of the present century. Before that date, when cavalry failed against infantry, the blame was laid on other shoulders.

The fact remains that, in the days of the old musket, cavalry always broke infantry, if they charged home. I do not call it charging home when the horsemen pulled up a dozen yards from the bayonets, and began firing their pistols and carbines. When, however, the bayonets and the musketry were bravely breasted, the infantry succumbed, as will always happen from the physical necessity of the case; for it is obvious that if a galloping horse, mounted or unmounted, fairly runs against a man, whether the latter be standing or kneeling, the presented bayonet cannot save him from being knocked over.

That cavalry experienced loss in attacking infantry is true enough, though upon examination it was not in those days nearly so heavy as is generally supposed, and in any case not greater than was ordinarily incurred by infantry in storming a fieldwork or a well-defended breach.

Troops repulsed in an assault will always suffer loss, whether the object of attack has been a square of men or an earthen redoubt, and the greatest part of the loss is almost always felt after the retrograde movement has begun. All cavalry soldiers should lay it to heart that, once launched, the greatest chance of safety lies in success.

Napoleon, even after 1815, always maintained the superiority of cavalry over infantry, while Wellington was of a contrary opinion; yet the splendid heavy cavalry of the former failed utterly against our squares at Waterloo, while twelve squadrons of British dragoons at the same famous battle rode over a whole French division, taking 3000 prisoners and 40 guns.*

As to artillery, before the introduction of rifled guns, it was never doubted that when alone they were always

* The charge of the Union Brigade on the division of Alix, after the defeat of the French cuirassiers. The effective strength of the brigade was 1181 sabres.

liable to be captured by cavalry, unless protected either by their position or by a special escort told off to defend them.

I wish now to show that the recent extraordinary improvements in fire-arms, whether cannon or rifles, have not, when their effects are properly understood, by any means deprived the cavalry of the chance of playing a great, if not a leading, part in future battles.

"Recent events have shown that the duty of cavalry, not only as covering the advance of an army, as outposts and reconnoiterers, but also on the actual field of battle, is more brilliant than ever."

Page 109,
"Précis of
Modern
Tactics."
Major
Home,
R.E.

The altered conditions of modern war, arising from the vast range of modern weapons and the terrible rapidity of the fire from breech-loaders, are by no means so generally unfavourable to cavalry as at first sight we might be led to suppose. They have necessitated a great change in the formations and tactics of infantry and artillery; and to the fact that the Prussians were the quickest in finding out, and adapting themselves to, these altered conditions is due at least as great a share of their successes in the late war, as to the superiority of their strategical combinations. But even the Prussians made by no means so effective a use of their cavalry as they might have done. I do not speak, of course, of their scouting and advanced-guard work. These duties were, no doubt, admirably performed, but it should be remembered that a good deal of the success that crowned the audacious enterprises of the Prussian cavalry was due to the utter inefficiency of that opposed to them, and to the extraordinary and blind carelessness of the French generally in these matters. Had even their infantry performed its outpost duties properly, the bold Uhlans would not have found their task so easy. This, however, is somewhat beside the subject, for scouting, etc.,

has always been a principal part of cavalry work, although seldom before so efficiently performed.

While admitting, therefore, the excellence of the Prussians on these points, I am only able to find one instance (Mars la Tour) in which their cavalry performed an important part on the actual battle-field. I do not include the campaign against the Army of the Loire—there, I believe, the cavalry were rather more conspicuous; but then, again, their enemy was decidedly inferior to the troops encountered at the beginning of the war.

This is somewhat surprising, as the success of their cavalry on that field, and particularly the charge of Bredow's brigade, was so great as to have justified, one would have thought, their more frequent employment in the same manner.

In old days, when infantry had no better weapon than the smooth-bore musket, it was invariably necessary for them to form square to resist cavalry. Now, however, the effect of small-arm fire has been so enormously increased, that infantry, in any closed formation, can inflict so great a loss on cavalry who incautiously advance upon them in open ground, that success becomes impossible. This is a fact, as the terrible slaughter of the French cuirassiers at Reichshofen sufficiently proved; and as a fact we must look it boldly in the face.

I have said that infantry in any *closed* formation can beat off cavalry; but the destructiveness of the fire from breech-loaders, working both ways, has compelled infantry to open and extend their formations to such an extent that a regular closed line will seldom, or rather never, be seen again in action. As for the deep and heavy columns once so much in vogue—though never, indeed, among the British—they are quite of the past as formations for fighting.

In fact, as the fire of infantry has developed and increased in effect through successive improvements in their weapons, so has their fighting formation become more and more extended, and so also have the odds in favour of the cavalry kept pace with the alteration; and there is no doubt that the latter have at least as good a chance of success against infantry armed with breech-loaders when in skirmishing swarms, as they had against the old musket and the serried square.

The brave deeds that are sometimes cited as "extraordinary" performances of cavalry might, I fully believe, be constantly shown us, if men had only confidence in themselves and were really well led. No one could ever accuse British soldiers of any rank of not being sufficiently courageous, but a want of confidence, of knowledge of their own power and the best way of applying it, seems to me to have been not unfrequently displayed by our own and other cavalries.

Not, however, to go beyond our own service, we may find instances of the accomplishment of what some, even under the old conditions, were pleased to term impossibilities, as, for instance, the action at Garcia Hernandez,* where two squadrons of dragoons of the King's German Legion charged each a square and were successful. In the first Sikh campaign the 3rd Hussars on more than one occasion took intrenchments armed with heavy artillery, and other feats might be quoted.

Although some regiments may be a little better than others, yet, as a rule, what can be done once can be done again; and the cause of failures, when they occur, should not be ascribed to the horses, or to mechanical reasons of any sort, but rather to a want of self-reliance and that

* 23rd July, 1812, during the pursuit of the French after the battle of Salamanca.

daring enthusiasm without which no striking success can be ever expected.

Even since the introduction of breech-loaders, infantry battalions in square—which must now be considered an abnormal formation—have been dispersed by good cavalry ; for at Langensalza two Prussian squares, unshaken by artillery, were broken by the pursuing cavalry of the Hanoverians (after several charges), and the major part taken prisoners. So that even now to break an infantry square is not absolutely impossible. Moreover, it is somewhat difficult to conceive a case in which infantry of the present day would think of, or indeed be able to assume, such a formation to resist cavalry.

While the formations and tactics of cavalry are substantially the same as those that were in vogue in the middle of the last century, those of the other arms, infantry especially, have, as I before remarked, undergone great changes ; and, before we can pretend to arrive at any conclusion as to the manner in which they are to be dealt with, it is necessary to examine these changes, and to endeavour to give ourselves a clear notion of how the other arms, but especially infantry, are handled in the fight.

In every action, whether it arises from one side deliberately taking up a position and awaiting the attack of the other, or whether the hostile forces encounter each other while they are both in motion, one party will always be attacking, while the other confines itself generally to the defensive. Of course the latter will make counter-attacks and so forth, according to circumstances and the skill of individual commanders ; but that does not affect the present question. Consequently one side always, which we will call the defenders, may be assumed to remain stationary, while the enemy, or attackers, have to advance and endeavour to drive them from their positions.

It is now clearly understood that the ground (disregarding irregularities) which the attackers have to traverse under fire, may be divided into three zones or belts. Major Home gives these as follows :—

- “(1.) That swept by the artillery fire alone. This may be said generally to begin at 2500 yards. Page 85,
“Précis of
Modern
Tactics.”
Major
Home,
R.E.
- “(2.) That where the unaimed or random fire of infantry is encountered, which begins to tell at about 1100 yards.
- “(3.) That covered by the aimed fire of the infantry, which commences at 700 to 600 yards.

“Artillery employed in defending a position does not fire so much on advancing infantry in the early stage, as on the attacking artillery, in addition to which the actual loss by artillery fire in action is small, being one-twelfth to one-fourteenth of the loss caused by musketry fire. Hence it may, speaking in general terms, be disregarded.”

From this, the rule has been deduced that infantry advancing to the attack may move with closed ranks, but with as much rapidity as can be attained without disorder, to about 1100 yards from the enemy's position. Up to this point they would not fire, and their formation would probably be a thin line of skirmishers, with supports; the main body still some distance in rear. Arrived at the “dangerous zone of infantry fire, not only will they begin to suffer, but the power of inflicting loss on the enemy by their own fire begins.” Consequently the skirmishers, or rather the “fighting line,” would begin to fire while continuing to advance by the rushes of successive fractions of their line. These rushes would be for about 50 to 60 yards, and always, when possible, from cover to cover. The supports would also extend more or less according to the amount of shelter obtainable. As the skirmishers got to the telling range of musketry, they would be reinforced

by the supports. This reinforcement would probably not take place all at once, but by a more or less gradual feeding of the firing line. At all events, by the time the latter arrived within 400 yards of the position they are attacking, they would have been strengthened by the addition of the whole supports; on the other hand, it is to be expected that they would also have lost considerably from the enemy's fire. The main body, originally equal in strength to the skirmishers and supports together, has now closed up, and become a supporting line, probably in very small columns, possibly extended like skirmishers, and about 300 yards in rear of the fighting line.* The second line of the attacking force has also begun to come within rifle range, and is slowly advancing, either deployed, or in line of columns of half battalions or less. The reason why a closer formation is possible for the second line is that the attention of the enemy's infantry is certain to be concentrated on those nearest to them, especially as they are receiving the fire of the latter. The fighting line continues to advance by rushes of successive or alternate companies or half companies, until they attain to within about 200 yards of the enemy. The supporting line, in the mean time, will have endeavoured to lessen its distance from the front line, and it has very probably already sent a portion of its men to reinforce and replace the inevitably numerous casualties of the latter. If these have been very numerous, and it must be remembered that the supporting line must itself suffer more or less, the men will probably begin to get dispirited, and the attack will fail. If, however, the confidence of the assailants be unimpaired, and especially if the slightest weakness shows itself among their opponents, both lines will now begin to prepare themselves for the final assault.

* Von Scherff advocates the extension of all bodies, even at a considerable distance from the enemy.

"If an attempt be made to realize the state of affairs at this period of the attack, it will be seen that the skirmishers, reinforced by the supports, are within 250 to 300 yards of the enemy; that the main body is some 300 yards in rear of the skirmishers; the divisional artillery perhaps some 1200 to 1400 yards off, supported by a portion of the corps artillery, the remainder of the corps artillery occupying advantageous places up to 2000 yards off, and all bringing a heavy cross fire to bear on the enemy's position; the second line of troops following up in rear of the main body of the first line, and perhaps some 500 to 600 yards in rear of it, a tremendous fire being maintained by the now thickened skirmishers, and the whole front covered with clouds of smoke. Such a state of things cannot last long; the skirmishers may get a hundred yards nearer, and the main body getting closer to them must prepare to carry the position. Gradually converging, the various portions of the main body must push rapidly to the front and drive the enemy out; while the second line, seeing the advance and hearing the cheers which accompany it, should push rapidly on also, ready to support the attack, meet the enemy's reserves, and confirm the success.

* * * * *

"The moment the position is carried every effort must be made to hold it. The troops should be re-formed; a heavy fire should be poured on the enemy as he retires; and the second line, following rapidly, must endeavour to occupy the ground, and, coming up in regular order, can do so far better than troops whose nerves have been wrought up to the highest pitch of excitement by a successful attack."

"The troops taking part in an energetically carried out attack are thrown into the completest state of loose order.

Page 94,
"Précis of
Modern
Tactics."
Major
Home,
R.E.

"Frontal
Attack" of
Infantry."
V. Scherff.

In this state they can certainly still follow up the existing object of the fight, but they are unavailable for action in any other direction."

It will be seen from the above that the attacking infantry, a mere swarm of skirmishers without order or cohesion, and advancing by successive rushes of certain fractions of the line, must offer continual chances for a bold dash of horsemen.

"Tactical
Retro-
spect."
Captain
May.

"The thin and extended lines of formation in battle will in future afford the cavalry opportunities for acting in a new aspect, by giving it occasions for energetic and immediate co-operation with the infantry and artillery in action. If the infantry attacks with the cavalry at hand, the latter will then be in a position to take advantage of the decisive movement, which has been prepared for it by the artillery, and the present tactics with regard to skirmishers, which require swarms of men in loose order, will reap the richest advantages.

"It will not be impossible for them to throw themselves in gaps through the enemy's line on their reserve; and even if no success were to follow, they would still spread terror and consternation. Indeed, the moral effect that an efficient fire of musketry or shell always makes, even on the best infantry, causes a favourable opportunity to arise for the use of cavalry."

This is no doubt true in the fullest sense when applied to the attacking infantry, but it must be acknowledged that when on the defensive they are by no means so easily dealt with. In the first place, they are prepared for, and absolutely awaiting, attack in some shape or other; hence the moral effect, which is so much in favour of cavalry when making a sudden charge, is in a great measure neutralized. Secondly, they will very frequently be found in shelter trenches or prepared cover of some sort, and although this

may be contemptible in itself as an obstacle, yet it enables them to maintain a closer formation without being demoralized by excessive loss. Also, their flanks are generally secure, and in any case their own cavalry would be much more nearly at hand than that of the attackers, which *must* be kept out of the range of infantry fire, and will therefore be generally behind the second line, somewhere in the neighbourhood of the reserves, while at least a portion of the defenders' horse would in most cases find tolerably secure positions in the immediate vicinity of the defensive line.

Looked at from this point of view, it would seem that infantry, stationary and therefore on the defensive, is rarely, if ever, attackable by cavalry *until defeated*, when cavalry should be used, if at hand.

If, however, they are retiring, which would generally imply that they were either outnumbered or worsted in the conflict, the conditions would be widely altered, and in this case it is probable that the cavalry of either force would have nearly equal chance of action. A great deal would depend upon the ground.

Thus my readers will understand that it is the cavalry of the defenders' side who have by far the greatest chance of playing an important rôle in battle. So important, indeed, does the action of the arm in this respect seem likely to become when properly understood, that it will, I believe, go far towards restoring to the defence that superiority which, from the experience gained in the late wars, it is now asserted belongs to the attack.

The moment which should be selected by the defenders' cavalry to attack the advancing infantry would probably be that immediately preceding the last halt, and ere the fighting line had been joined by the supports for a united rush at the defenders' position. This is the

instant of the greatest stress of conflict. If the attack is to prove successful, it is at this instant that the fire of the attackers will be gaining a marked advantage over that of the defenders. The attention of the former will be entirely concentrated on the enemy occupying the position so long assailed, and now so nearly won. They will be careless of their flanks, and the greater their superiority, whether actual or moral, the more open are they likely to be to a charge; besides, both fighting line and supports will by this time be sure to have suffered severely from the defenders' fire.

In any case the cavalry should delay their attack until that of the enemy has completely developed, which will not be, in most instances, until the fighting line has attained to within about 400 yards of the position; for it is no use risking the cavalry to crush attacks which may not be seriously intended, or may be repulsed by the infantry alone. At this period, also, the flanks are more exposed, and, above all, the cavalry will have less space to traverse under fire.

The actual instant of the rush for the position is probably the most favourable of all. The firing ceases, and the attention of the assailants is intensely fixed on what is immediately in front of them; but this opportunity is so very transitory that it cannot be taken advantage of unless the cavalry are very favourably posted. There would also be a difficulty in stopping, at this moment, the fire of the defending infantry.

It must be borne in mind that the best infantry positions *now* are those having in front a smooth, *glacis*-like slope; *

* St. Privat, independently of the strength afforded by the village itself, is quoted as being a model position, and here it has been especially noticed that the French cavalry might have rendered the greatest services if they had been in the right position.

all broken ground before the position is acknowledged to be bad from the cover it affords to the assailants. Such smooth and gentle slopes are peculiarly favourable to the action of cavalry.

If the ground in front is not well known, which is unlikely, a careful observation of the enemy's advance might possibly supply the necessary knowledge. But cavalry would always endeavour to learn all about the ground over which they may have to act. This can be done by means of scouts.

In case no other opportunity offers, the enemy should always be charged, if the ground at all serves, at the moment of their gaining the defenders' position. Cavalry would be held in readiness for that very purpose, and should be brought up if not previously at hand. They should be posted, if possible, somewhat to a flank and not immediately in rear of the assailed point, otherwise they might be seriously impeded by their own retreating infantry.

The confusion and disorder of the successful troops is probably not less than that of the defeated; also, the mental intoxication which accompanies victory, and the complete mixing up of the companies, render them extremely difficult to rally. The second line troops will take several minutes to arrive, and then be probably somewhat out of breath from doubling; neither they nor the artillery will dare to fire, on account of their own men, and from all these circumstances combined it would seem quite possible for the cavalry, under favourable circumstances, to clear the position of the enemy.

A bold dash of even a very small body at this moment would, at all events, save the retiring infantry from further loss, and, if the latter were not greatly disorganized, might even serve to turn defeat into victory. If the attack be

worsted, the moment of recoil should also be seized: a charge of cavalry then would so shatter and demoralize the attacking force that a second attempt would seldom be made on the same point.

Charges are always made, if possible, on a flank. If the present system of infantry tactics continues, the flanks of an advancing swarm line will be frequently assailable, especially as the front of a real serious attack will often not exceed 300 yards. If, however, the flank cannot be attained, then should the cavalry rush down on the infantry obliquely, and endeavour to sweep along their line, re-entering the position at another point. They need be, I think, under no apprehension as regards their own exposed flank, for no hostile cavalry are likely to be near enough at hand to take advantage of them.

The enemy's line of supports, being also more or less extended, should invariably be attacked at the same time as the skirmishers, or fighting line. As for the closed bodies in rear of these, even if they are in a favourable position to open fire, which may not be the case, they will hardly dare to do so, for fear of striking their own comrades. An uncertain and scattered fire is, therefore, all that need be expected from them; and as the cavalry would be passing along their front at a rapid pace, presenting, moreover, but a comparatively small target, the loss suffered by the latter from this cause would probably be insignificant. The same will apply with equal force to the fire of artillery.

It has also been said that even if the enemy are merely driven into close bodies, a great advantage is gained; for the progress of the attack is thereby interrupted, and these bodies, being an easy mark for the infantry and artillery fire of the defenders, would suffer terribly. But it should in this case be remembered that the cavalry themselves would also experience a much greater loss than if the charge was driven gallantly home.

No attack of cavalry should ever be undertaken without a firm intention on the part of all concerned to succeed in the fullest possible manner. A half-hearted charge, in which the cavalry, advancing with slowness and irresolution, content themselves by trying to frighten the infantry into drawing themselves together, will not only be productive of loss, but will also tend to lower their own *morale* and induce the hostile infantry to treat them with contempt. Such attacks have also this disadvantage, that it is extremely difficult for the horsemen to clear the front of their own infantry in sufficient time to allow of the latter taking full advantage of any confusion which may have been induced by their appearance; such disorder lasting but a short time if the enemy are good troops.

Formations for the Attack.

I have previously remarked that, as infantry formations have been necessarily modified on account of the devastating nature of the fire from breech-loaders, so also ought those of cavalry to be adapted to the altered conditions under which they will have to fight.

The formation of cavalry in single rank, or as it is usually termed, "rank entire," has long been advocated by authorities on military matters, from the Duke of Wellington to Sir Garnet Wolseley. I might here insert several pages of quotations from writers on the art of war bearing on this point, but to do so would only tend to increase the bulk of this volume, without, perhaps, affording a more convincing proof to my readers than may be contained in an appeal to their common sense; I will therefore confine myself to stating that many powerful arguments in favour of this practice, some of which I am about to reproduce (for brevity's sake, in my own words), are

to be found in the works of various military authors, and may be thence sought out by the critical inquirer.

As far as I can see, the main reason why single-rank formation has not long ago been adopted, has been the general unwillingness of cavalry officers themselves to accede to the alteration. For they are, it seems to me, of all classes of military men, that most opposed to change, and which clings most persistently to the ideas in which they may happen to have been brought up.

The argument I have most commonly heard used against single rank is its weak appearance. Now, surely, if the moral effect of cavalry is so great as it is still supposed to be, and even granting this weaker appearance of a single-rank line, some sacrifice of the *appearance* of strength may be allowed if additional real effect can be thereby gained. Also I have heard it argued that in a charge the natural spreading out causes the line to become nearly a single rank at the moment of contact. If this is true, how faulty must the system be which starts a charge with two ranks in close order, only to reach the enemy in one single and (necessarily) disordered line! This probably would not occur with highly trained cavalry; at least, it does not on the parade ground, although, so far as my small experience goes, a really well-executed charge is a rare sight. And, on the other hand, *if it does not*, then half the strength of the charging squadrons, that is, the whole of the rear rank, is useless at the all-important moment of the actual shock; for nobody can seriously pretend that the front rank receives any positive impetus from the rank behind. If the rear-rank horses strike against or jostle those of the front rank, it must interfere with the action of both, and impair both speed and steadiness.

In the hunting field there is nothing a man so much dreads as being too closely followed by another man, as he

is so liable to be jumped upon when down, or knocked over if his horse makes a slight mistake and is trying to recover himself. It seems hard that a front-rank man, in addition to his chance of receiving injuries from the enemy, should be compelled to have another man riding so close behind him that he is almost certain to be ridden over if he falls; in which case the rear-rank man probably goes down too, and both are *hors de combat*. It is not to be supposed that this is pleasant even for the rear-rank man, although he has the best of it in this particular respect; and it is probably a dread of something of this kind happening which induces the rear-rank man to try and shove into the front rank, and, the men of the latter being only too glad to have them there, the regiment gets into a sort of irregular rank-entire line, extending over much more than its original front. Thus are produced those single-rank charges before alluded to; but I do not think any one will argue that this is intended, or that to permit the practice is really beneficial.

The fact is, a rear rank has always a tendency to produce unsteadiness and confusion; the timid of both ranks hang back, the bolder spirits urge forward. With only one rank this, at all events, is avoided. No man can shirk without being instantly observed, and the sense of shame will tend, and probably be sufficient, to keep men in their places, unless indeed they are thorough cowards; but these are happily rare.

To "take order" before a charge when in two ranks is good, but an interval of three or even six horses' lengths will not by any means obviate the evils and inconveniences above mentioned. There will probably be less disorder, but the distance is too short to prevent the rear rank tumbling over the front rank just as effectually, or rather as ineffectually, as before, the moment the former are checked by the resistance of the enemy's line. If the front rank is

overthrown, the rear rank is equally implicated; and if, to avoid this, the rear rank is allowed to remain still further back, it amounts to a virtual adoption of the single-rank system, including its disadvantages, if any, and with the obvious one in addition of adopting a new and unaccustomed formation at the very moment when both the minds and bodies of the men are subjected to the utmost strain. How much better would it be if the present inconvenient and disorderly rear rank was permanently formed as a regular and well-ordered *second line*, at a proper distance from the first, to which it would then be in a position to afford that certain and assured support which is absolutely essential to the attainment of a real success in a cavalry attack. Moreover, by this plan the greatest possible amount of use would be made of the men and horses at disposal.

There is also another advantage to be gained by this formation, which, in the proper order of things, I ought to have laid first before my readers. It is the greatly decreased amount of casualties likely to occur among any given number of horsemen formed in single rank, compared with what would be suffered by the same number in the present two-deep formation. Cavalry must always offer a large mark; but the single-rank formation would not only reduce the target, but there would be no second row of men and horses conveniently placed to catch the fragments of shell and the rifle bullets that may have passed through the interstices of the front rank.

The number of casualties caused by artillery fire to the rear rank is nearly as great as that in the front rank, besides the confusion caused by a lot of horses being hit. Even an infantry bullet is said sometimes to go through a man's body with sufficient force to disable another behind him. However this may be, it is certain that cavalry in

two ranks will suffer more, in proportion to the number of men under fire, than if in one rank; and the unavoidable casualties are already sufficiently numerous to induce us to adopt any formation whatever that may tend to lessen them.

In addition to the inevitable disorder which I have already spoken of, and which always attends a long advance at a rapid pace when the troops are in two ranks, there is a very prevalent, almost universal, though very pernicious idea among cavalry officers that it is impossible to prevent the men opening out in a charge, and even during the preparatory gallop, when that exceeds a certain pace. Also, that this loosening of the files in each squadron, sometimes carried to such an extent as to produce a considerable extension of the line, is, if not unavoidable, at least quite permissible, and even sanctioned by the regulations. Now, I am perfectly well aware that a horse extended requires more room than a horse at the trot or collected gallop. But, firstly, cavalry horses are *not* extended until the charge is actually sounded, and sometimes, I am sorry to say, not even then; and, secondly, the six inches' distance from knee to knee allowed in the ranks is *nearly* sufficient even when they are. I have taken great pains to satisfy myself on this point, which is a very important one, and I think any cavalry officer, directing his particular attention to the matter, will end by coming to the same conclusion. The experience of the racecourse also bears out what I say.

We know that Seidlitz, whose horsemen did more than any European cavalry before or since, was particular in causing his men to *close together* before and during a charge; and certainly, from the account of his actions, one cannot believe that his attacks were by any means wanting in pace. It is also true that it is very difficult for any but a

M-8706

very highly drilled cavalry to maintain a really close order during an attack when in two ranks; but this difficulty almost entirely disappears when the rear rank is removed.

I can speak to this from personal experience, which has only been on a small scale, it is true, but what holds good for one squadron holds good for many, seeing that each is a separate and distinct body of itself. There is also no fear, if only the squadrons are kept down to a moderate size, of their centres becoming painfully crowded from the pressure, which will never be so great, in a squadron of 40 files or thereabouts, as to prevent the horses from galloping out, and the men from having the free use of their sword arms.

"Cavalry
Field
Duty,"
by Major-
General
Von
Mirus.
(The text-
book for in-
struction
in the
German
army.)
Trans-
lated by
Captain
F. Russell,
14th
Hussars.

"There is nothing more important in an attack than to preserve the order and close connection of the troops who charge; in a word, there is nothing more important than that there should be no gaps in the line. The men must be *closely locked up together*,* and should come on the enemy in an unbroken and perfect order; this order should never be lost, least of all at the last moment of attack, when perhaps the quickness of the horses' movements and the effects of the enemy's fire might excuse it."

It is from the faulty practice of permitting men to open out that the idea has arisen of the weak appearance of a single-rank line. When once this is checked, and the men are ordered to "close up," instead of being allowed to open out at the gallop, I think I may assure my brother cavalry officers that the imposing aspect of the advancing line is not lost by the absence of the rear rank; and they would be astonished at the ease with which order and dressing are preserved, when once the men become accustomed to the change. The rear rank serves but to hide defects in the line which should not and need not exist. The advantages of having but one rank are particularly con-

* The italics are mine.

spicuous in moving at a rapid pace over rough ground and in leaping fences. Entire squadrons, in a single rank, can positively, after a little practice and if not permitted to open out, clear small fences of the same character as riding-school jumps, at the gallop, without disorder, and almost without losing their dressing. This I believe to be in a great measure owing to the confidence the men acquire from having no rear rank to drive them on, irritating and unsteady the horses in front, and positively endangering the lives of any men who may chance to fall. In fact, the practice would be impossible with two ranks, even at "order." Yet, in all countries, small obstacles, ditches and banks, etc., must occasionally be crossed, and how much more effective must a cavalry be which is able to treat such with indifference, instead of being, as is now commonly the case, restricted in their movements by every trifling fence; an attempt to cross such at speed, and without breaking the ranks, resulting in perhaps a third of the men and horses being left floundering on the ground, and the remainder thrown into the greatest confusion.

"On the 18th August, 1833 . . . the enemy's posts in front of Oporto were driven in at daylight by four squadrons of lancers. In turning the corner of a wood they suddenly came upon a battalion of caçadores, which had just retired behind a stone wall under cover of the guns of one of their forts. The leading squadron, having no rear rank to tumble over or hurry them, leaped the wall into the midst of the enemy, and made them all prisoners. The second squadron was ordered up, and charged through the enemy's burning camp—an exploit deservedly highly spoken of," etc.

These lancers were the Reyna Isabel Regiment in the Portuguese service, then commanded by Colonel John

Extract
from letter
to Editor
*United
Service
Gazette*, by
General
Bacon,
late Portu-
guese
service, by
August
3rd, 1854.

Kinloch. They invariably manœuvred and fought in single rank, and did much excellent service.*

With a view, then, of reducing casualties while retaining and even increasing the fighting power of the line, and also to provide cavalry with that essential, an invariable support, of which neither the most rash nor ignorant of leaders shall be able to deprive them, I earnestly advocate the formation of our cavalry in future in two lines, and in single rank, each line to have the same number of squadrons, and to be complete in itself. (The drill part of the question will be considered hereafter.) This should be the normal formation of cavalry; and although an improvement on our present order, yet, when it is a question of diminishing the casualties caused by modern fire-arms, as in a general attack on infantry and artillery, it is not enough, and a further advance in the direction indicated is necessary before cavalry will be ready to take their proper share of fighting in future.

The infantry have been compelled to open and extend their formations: cavalry must follow suit. If not, they will either be compelled to keep out of range of the breech-loaders, or to purchase success in their attack at a fearful cost. And it would appear, from a careful study of the recent wars, that cavalry, to attain the greatest advantages against infantry, with the least possible loss to themselves, must also, like the latter, adopt a mode of attack in extended order.

“It is probable that in many cases cavalry will find it expedient to follow the general tendency towards more extended formations, and to adopt against infantry and

Colonel
Hamley,
“Operations of
War,”
chapter v.

* The above letter, as well as several others from the same pen and that of Colonel Kinloch, together with the celebrated letter of the Duke of Wellington on this subject, are to be found in the Appendix to “Cavalry in War,” from the text of Bismarck, edited, etc., by Lieutenant-Colonel Beamish.

artillery an order for its front line resembling the advance of infantry skirmishers."

"Prussian cavalry has for a long time adopted the *échelon* form of attack. The principle is correct, for the squadrons follow one another at intervals, one drawing the fire, the next breaking in. But the present fire-arms are so quickly loaded that there is really no cessation of fire. You may, however, mislead infantry into dealing its fire with precipitation and want of regularity. The attack in skirmishing order here seems to us preferable to that of compact squadrons.

Boguslawski,
"Tactical
Deductions."

"Thus we will imagine the charge of a cavalry regiment to be executed somewhat as follows:—Two squadrons in extended order throw themselves upon the infantry, two following at a trot about 300 paces in rear. The leading squadrons rush at, or perhaps ride through, the enemy's skirmishers, wheeling off before his masses, or galloping past them.

"The officer commanding the two squadrons in close order, who, with his trumpeter, accompanies those in advance until pretty close to the enemy's infantry, sounds the gallop for his own squadron as soon as those in front have felt the first effective fire, and makes his charge.

"This plan may be the most likely to induce the enemy to blaze away in a hurry, thus affording greater chances of success to the real charge which follows. We repeat it *may* have the effect, but we are far from setting it forth as an absolute recipe for restoring to cavalry its old power in battle. At all events, this appears to us to be the best method, particularly as the horsemen in extended order would suffer less loss than if they were in compact bodies."

There is much of truth in this; and no doubt the principle is nearly correct for the attack of infantry in their

usual fighting formations.* Strange it is that cavalry officers should have left it for an infantry officer to point out to them the best method of using their own arm.

As infantry will no longer have to be encountered in squares or heavy masses, a close formation, the object of which is to burst through and disrupt these masses by the excessive shock of the onset, is not now required, while at the same time the deadly effect of infantry fire may be greatly mitigated by opening the files, not exactly into skirmishing order, but with intervals of a horse's length or less. And this principle would be applicable not only to the attack upon swarm lines of skirmishers, but also upon infantry in close and regular formation. Indeed, in this latter case, it is the only method which offers a decided chance of success.

Possible Attack on Infantry.

Only let this system be adopted, and it is not difficult to see that it will, in all probability, lead to very great and important results. We know that with cavalry the effect produced is less a question of actual numerical strength than with any other arm. If even a small number of cavalry get well among a lot of infantry, they usually have it pretty much their own way. I remark this because a single-rank squadron, extended at intervals of a horse's length, will cover as much ground as a whole regiment does at present, and with only one-eighth of the men. This is of no consequence, provided that that eighth, or its *supports*, can actually get among the infantry without being shot down on the way.

* The Austrians, at least, have already adopted a mode of attack in "swarms," as they term it. At present, however, they do not appear to see how far the principle will carry them if properly applied.

Now, suppose a battalion of infantry in line be so posted as to sweep with their fire the ground in front of them up to, say, 800 yards, the ground being ordinary ground, over which horses can gallop. Imagine this line to be attacked in front by a squadron of cavalry, numbering 40 files, in single rank and extended order. What target would be presented to the aim of the defensive infantry? Such a squadron extended at intervals of *one horse's length* between the files would cover 144 yards. A target to represent a mounted soldier is generally made eight feet high and three feet wide. There would be, including leaders, *serre-files*, trumpeter, etc., say fifty of these targets distributed with tolerable regularity over the above space. Total area of targets, 1200 square feet.

Now, let us imagine that the same position is attacked by infantry. We shall find that at a distance of 400 yards from the enemy, which I take as the mean, the same space of 144 yards would be occupied by not less than 100 infantry soldiers, distributed over it as a swarm line of skirmishers. The number 100 is probably a good deal under the mark. Targets to represent infantry soldiers would be six feet high by two feet in breadth, which would give a total area of target of 1200 square feet, or precisely the same as the cavalry. This is a very rough calculation, and swarm lines of infantry are of different densities at different periods of the attack; nevertheless, I think it may be laid down as a general rule that cavalry extended at intervals of one horse's length will present about the same target, over the same extent of ground, as infantry in attacking swarms.

But it will be said that by this calculation the infantry are taken as if they were standing up in the open, whereas in practice they would take advantage of whatever cover they could find, and, failing this, would lie down. This is

quite true; but, while remarking parenthetically that cover from sight is very frequently no protection from fire, I must remind my readers that a man cannot progress while lying down, and that whenever he wishes to gain ground to the front he is compelled to get up. He will run, of course, and he may also assume a stooping posture, and thereby endeavour to lessen the target; but the fact remains that, if the position is to be carried, every man of the attacking force will have to expose himself at various times over every yard of the intervening ground.

If the position is well defended, it always takes a long time to bring a front attack (and with such only are we now dealing) to a satisfactory issue, during the whole of which the assailants are under a rain of bullets.

Hours would probably elapse, and severe loss be experienced, before the infantry would be standing triumphant on the ground lately occupied by their opponents.

Now, the cavalry, if they choose to gallop out, would cross the same ground *in about two minutes*. If in extended order, it is not probable that, though exposed from beginning to end, their proportionate loss would exceed or even equal that of the infantry.

Cavalry cannot take advantage of cover, or by any direct means shelter themselves from the shot of the enemy whom they are attacking. To counterbalance this disadvantage, they have one great advantage in their favour of which nothing, except their own acts, can ever deprive them; I mean their immense superiority in rapidity of motion—a quality which, if properly applied, may be in the future productive of the highest results, and which the system under consideration is calculated to develop to the greatest possible extent.

I have not, in the above remarks, alluded to the presence of supports, though they are, with cavalry as with

infantry, the essence of the whole thing, but in a different manner.

The extended line which I have imagined would be followed at an interval of 150 to 200 yards by a similar line similarly extended, and that, again, by a third and a fourth, and more if necessary.

Here the system of single rank, doubling at one stroke the possible number of reserves, permits us to contemplate the employment of as many successive lines as may be deemed necessary to effect the object in view; and these lines will follow one another, as I have stated, at somewhat narrow intervals, and over the same ground, or nearly so. To prevent misconception, I will at once point out that an attack on infantry by single-rank extended lines of horse-men is in this respect a different affair to charges of cavalry in their present formation, where it is a universally accepted principle that different bodies are on no account to follow one another in the same track. This is not only on account of the risk to the supporting lines of being involved in the defeat of the first, but also, since the introduction of breech-loaders, because the ground over which they would have to move is certain to be much encumbered with the *débris* of those which have preceded them. In the above method of attack, such objections would not exist. An extended single-rank line, having no rigidity of formation, could not be disordered in the same sense as cavalry formed in two close ranks, and, if checked, would be picked up by the next line without throwing it into confusion; also the fallen men and horses of the leading line or lines would not only be fewer, both relatively and absolutely, than can now be the case, but those following them being also at open files, the men would have but little difficulty in avoiding such obstructions of that nature as would lie in their path. There would, consequently,

be no difficulty in using several extended lines in direct support of one another; and although the leading line or lines would no doubt suffer, there would be every probability of those in rear arriving amid the enemy with their order and *morale* but little, if at all, impaired.

In the above example, I took an extreme case—that of cavalry attacking in front a body of infantry acting on the defensive, and prepared to receive an attack. Rarely, indeed, would cavalry be called upon to perform such a feat; yet I cannot but believe that when the ground is suitable—and remember that such as is now considered most unfavourable for an infantry attack would be the very best for cavalry—an assault undertaken in the manner I have outlined above, in which successive lines of cavalry, with opened files, dash on like waves of the sea, to break on the defending infantry, contains in itself all the elements of success.

In general, however, cavalry could only be called upon to attack and drive into rout lines of infantry in loose and somewhat scattered array. Their power of accomplishing even this has been doubted by many, but as it may in future be their especial *role* on great battle-fields, we will proceed to consider it at length.

Flank or Oblique Attack on Extended Infantry.

The attack on infantry in swarm lines of skirmishers, *e.g.*, when they are themselves the assailants, would be made somewhat as follows:—The leading squadron (single rank), issuing from the defenders' position at the gallop, would extend its files at intervals of one horse's length, and bear down obliquely upon the first or fighting line of the enemy,* followed by its proper support, or corresponding

* This is supposing that they cannot be taken in flank.

squadron of the second line, in similar order. The second squadron, also in two extended lines, would in like manner charge the line of the infantry supports. All, as soon as the point of attack was attained, would bring round the forward flank and sweep at full gallop along the lines, sabring and riding over the more or less scattered infantry; while the remaining squadrons, in close order, would follow them, each of course in two lines, completing their work, if necessary, and ready to afford protection, should the enemy, on his part, be able to bring up any cavalry for a counter attack.

A sufficient effect having been produced, or, as is more probable, the flank of the enemy's attack having been reached (there being, in fact, no more infantry to ride over, for it is extremely difficult, even if desirable, to stay cavalry once launched in full career), the attacking squadrons would wheel up and re-enter the position at a point probably considerably removed from that at which they first burst forth, the squadrons in close order covering the retreat. As soon as they got out of fire the regiment would reform and return to its original ground. (See diagram, p. 32.)

As I have before remarked, an attack of this nature would be most effective in its results* if made at the moment when the fire of the advancing infantry was beginning to gain an advantage over that of the defenders, also at that when the attackers have actually penetrated the defenders' position, and before their second line has had time to come up.

In either of these cases the space to be traversed under fire would not be great; of course the less this space is the better, provided the attacking squadrons have time to extend their files before coming under the close fire of the enemy.

* I mean with the greatest advantage to the defensive side generally.

In the latter case, I think, and possibly also in the former, it would be the duty of the cavalry to attack, if at hand, and if the ground be suitable, whether they are able to open their files or not. The word should always be given, and the files opened as much as might be practicable, during the short advance.

In rolling up lines of infantry by an attack in extended

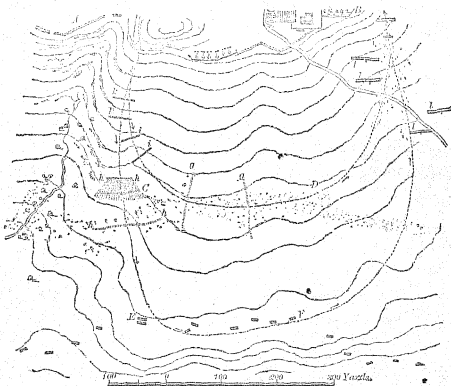


DIAGRAM.

The diagram represents a regiment of four squadrons attacking the assailants of a position.

A, B. Defensive position.

C, D. Firing line of assailants (250 yards distant).

E, F. Supporting line of assailants.

g, g. First squadron attacking the firing line.

h, h. Second squadron attacking supports (its rear line is in the act of extension).

i, i. Third squadron supporting first.

k, k. Fourth squadron supporting second.

l, l, l. Third and fourth squadrons covering retreat of the extended squadrons after the attack.

The dotted lines represent the course of the cavalry.

order, the "charge" would not be sounded, as this always implies a dash at utmost speed for a comparatively short distance; the object of which is to burst through the enemy, when in some formation supposed to be capable of offering a solid resistance. To sound the charge to squadrons advancing in extended order, on any occasion, would be to incur a risk of much greater dispersion than is at all necessary or desirable, and would also lead to the adoption of a rate of speed which could not be maintained over the whole distance, often considerable, which the cavalry would have to traverse.

All the lines, therefore, will be led at a dashing gallop, short, however, of the pace of an actual charge, and will maintain a proper distance from one another. The men will also be taught not to separate to a greater extent than ordered; in fact, once extended, the tendency should be rather to close again towards the centre by inclining inwards. The inevitable casualties and natural tendency to separate always displayed by horsemen in loose order, when galloping at speed, would prevent the intervals becoming too small. Above all, every man should keep one eye perpetually on his leader, and regulate pace and direction accordingly.

By following out these principles, the retreat of the squadrons, when their work was done, might be effected without disorder, and without avoidable loss.

The duty of the closed squadrons would be to support the attacking lines, to complete their success, and to charge the enemy's cavalry, should any make their appearance. The real attack on the infantry will be made by the extended squadrons, and not (as Boguslawski, previously quoted, suggests) by the closed squadrons following in rear of those in "skirmishing order," which he no doubt uses as synonymous with "extended order."

It must be remembered that the distance to be traversed by the cavalry under fire will not in general exceed 300 yards, and this distance can and should be covered in about *thirty seconds*.* In fact, the horsemen would be down upon the startled infantry before the latter could realize the situation; the known moral effect produced by an attack of cavalry, on even the steadiest of infantry, would be developed to the utmost, and natural instinct would almost certainly induce the latter to run together and endeavour to form rallying squares. If so, but very few shots could be fired at the cavalry during the short period that would elapse between their first appearance and the moment of reaching the enemy's line. Consequently the suddenness and celerity of the attack, if properly conducted, would in a great measure neutralize the deadly power of the breech-loader; and as for the wild volley that might be blazed off by such scattered knots of men as had succeeded in grouping themselves together, *that* would be no more than had to be encountered in the days of old Brown Bess and her smooth-bored sisters, and ought not, I think, to deter ordinarily brave horsemen from riding through and scattering any small closed bodies that might be thus hastily formed to oppose them.

As the end of the line was reached somewhat more of resistance might be expected, especially among the supports, since they would have had more time for preparation; but even these would not in general be allowed more than *two minutes* before the first wave of the cavalry was upon them. The discouraging spectacle of the majority of their comrades being ridden over and sabred by the victorious horsemen would not be without its effect, and should they

* This is a liberal allowance. Berenhorst says cavalry can cover 600 paces (500 yards) in 30 seconds. Nolan, correcting him, puts it at 40 seconds. This would allow 24 seconds for galloping over 300 yards.

even succeed in withstanding unbroken the two successive attacks of the extended squadrons, it would be strange if they had not been, as Captain Boguslawski remarks, "induced to blaze away in a hurry, thus affording greater chances of success" to the closed squadrons following in rear. Indeed, the latter ought to make short work of them. Finally, any knots of men that might, to the shame of the cavalry, remain intact after the four successive attacks, would be subjected to the re-opened fire of the defenders' infantry and artillery, even if, as is probable, the whole line did not advance to secure a permanent advantage from the confusion and dismay resultant on the cavalry charge, an effect which might quite possibly extend itself to the enemy's second line battalions and reserves. On the other hand, the moral tone of the defenders, perhaps previously overmatched in the fight and beginning to despond, would be proportionately raised, and, were it now possible to advance rapidly, a complete and crushing defeat might be inflicted on the enemy—an advantage which never falls to the lot of an army that, willingly or otherwise, confines itself entirely to the defensive.

Direct Attacks.

Thus far we have considered the attack made, either on the flank of an advancing enemy or obliquely, in which case it may be called an artificial flank attack; the object being in both instances to traverse the length of the enemy's line, or as much of it as possible, rolling it up from flank to flank.

This is, no doubt, the most advantageous method of employing cavalry against infantry, especially for a comparatively small body—a single regiment, for instance, or less—such as would be attached to a division in the field;

and it is in this way that the cavalry of the future will have the most frequent opportunities of assisting to decide battles.

Nevertheless, it may also be necessary or desirable to make a direct attack on the enemy. This would, as a rule, be only undertaken by a larger body than the divisional cavalry can muster, and would never be attempted by the latter when the army was on the defensive, without special orders and for a special object; such, for instance, as the capture of massed guns, which, having overpowered the artillery opposed to them, were shaking by their fire the defenders' infantry. In this case the attack would be ordered at a rather early stage of the fight. Again, if the enemy's attacking infantry, unassailable in flank or obliquely, was from superiority of numbers or other reason gaining ground fast in the action, it is conceivable that affairs might be so bad that the officer in general command would be justified in making a desperate effort to avert defeat; also if it be required to save troops already beaten from complete rout, when the cavalry, perhaps not able to be brought up before the crisis was past, would have to attack, irrespective of the enemy's position, whenever they got within striking distance.

In all cases, however, where infantry are the objective, the attack should be made on the principles already laid down. And I would point out (at the risk of repeating myself) that it is particularly necessary to extend the squadrons when the attack is made directly. For not only will the advance have to be made over a greater distance, but it will also be a saving of loss if the front can be made to equal, or if possible exceed, that of the enemy, thus inducing a divergent instead of convergent fire. In a direct attack on infantry in fighting or swarm formation, it would be of more importance to charge them, if by any

means practicable, over the whole extent of their front, than to have an excessive number of supporting lines, since the infantry have no solidity to withstand a shock, but have, on the other hand, a great development of fire, to divide and scatter which as much as possible is of very high importance. Besides, by attacking the infantry over the whole or the greater portion of their front, which would not be at all impracticable if the attacking squadrons were well practised in extending during the advance, no one part of the line would have more time to rally than another, if rallying is of much advantage, which I doubt.*

Two squadrons, then, of the front line would, as a rule, charge together, extending from their centre. Their front would then cover about 300 yards, which is sufficient in most cases. These would be followed by their natural support of the two second-line squadrons, also extended. The remaining squadrons would follow. The other two of the front line (the *third* attacking line) might also be extended; but it would, I think, be almost always advisable to keep its support, the last reserves, formed by the remaining two squadrons of the rear line, in close order—that is to say, with closed, not open files. Bodies in this formation would *échelon* themselves on the extended lines, according to the discretion of the leader, who would naturally avoid as much as possible the ground traversed by the extended lines in making their attack. If it be required to have a still more extended front, three squadrons might be

* It may here be noted that infantry *lying down*, as they generally would be in open ground, *cannot fire with great rapidity*. From actual observation, I am of opinion that the rate of fire under these circumstances does not exceed that of the ordinary firing of muzzle-loading armed infantry when standing. The general assumption of even a kneeling position seems to me to cause a very perceptible slackening of the fire. The greater portion of my readers will be in a position to form their own opinions on this point. If I am right, they will agree with me that the fact is one which ought not to be disregarded.

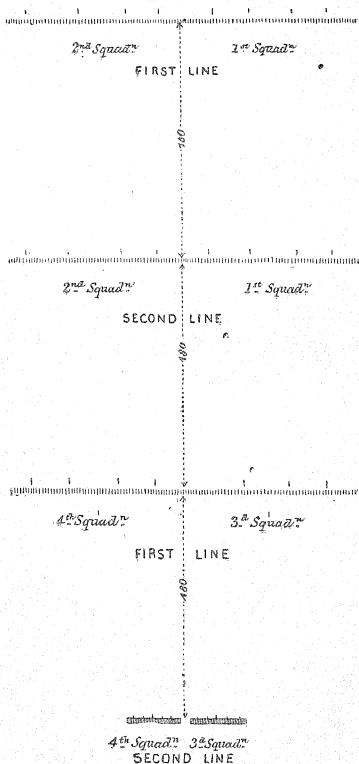


FIG. 1.—Regiment of four squadrons (40 files) making a direct attack on infantry. Extent of front = $144 \times 2 = 288$ yards. Scale, $\frac{1}{1250}$.

advanced in the first line, supported by their corresponding three of the second line; leaving one squadron of each line to be retained in close order and formed into one line as a reserve.

The reader will observe that it is always practicable to preserve *three lines*, even with a great extent of front.

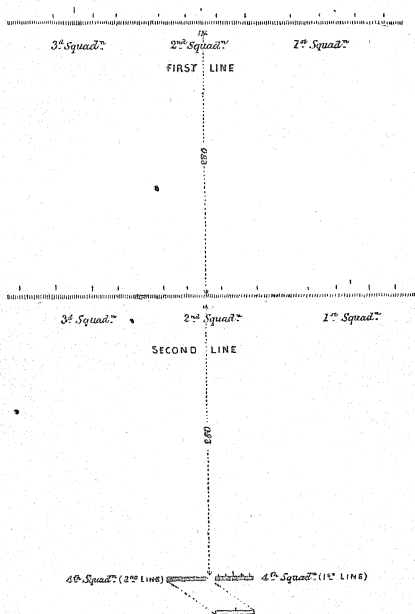


FIG. 2.—Same regiment attacking with a front of three squadrons.
Extent of front = $144 \times 3 = 432$ yards. Scale, $\frac{1}{2000}$.

There is no reason why this attack should not be equally successful with the one first detailed—successful, that is, as regards the attainment of the object aimed at—but the loss, though perhaps not excessive, would probably be severe; decidedly greater than in the previous instance, since the advance would have to be made for a much greater distance under fire, and this distance would have to be traversed *twice*. Besides which, there is always the chance of encountering the enemy's cavalry, who would be enabled to assail the extended lines to great advantage. The more successful the attack, the greater is the distance to which the enthusiasm of the men is likely to carry them, and the more probable also is the appearance of hostile squadrons on the field. It is to oppose these, as well as to afford a good rallying point, that I have suggested that the rear line be kept in hand, in close order. Above all, it should be remembered that, in attacking infantry, exact formations are of far less importance than celerity of movement. If infantry can be attacked with such suddenness as to have the effect of a surprise, they are beaten already. The great danger will probably be found to lie in the counter-attack of the enemy's cavalry, who, if they can throw themselves unexpectedly on the extended squadrons, will probably succeed in turning the tables on them to their own satisfaction. It appears to me, however, that even here the risks are no greater than at present; for but a small portion of the force will at first be offered as an object of attack to the enemy, and these being in extended order ought not to find much difficulty, if surprised, in withdrawing themselves from the shock, by galloping out to each flank and leaving the enemy to be dealt with by the closed reserve. It is evident that the horsemen of the extended lines acting in this manner can suffer no loss from hostile squadrons that bear down straight upon them, unless the

latter break their ranks, in which case they ought to be overthrown by the reserve. The extended squadrons should endeavour to rally with the utmost speed, and fall on the enemy in flank and rear. If, however, the hostile cavalry are first perceived at some little distance off, the leader of the first extended line should call on his men to close on him, and, trusting to the immediate support of the next line, dash at the foe as hard as the horses could gallop. It is possible that the enemy would be so astonished as to give way before him, and in any case he would probably gain a moment's time for the remainder, which might make a good deal of difference.

Cavalry of Attacking Side.

It has been before remarked that the cavalry appertaining to the attacking force has considerably fewer chances of distinguishing itself than that of the defenders. This principally arises from the necessity of keeping cavalry, more than any other arm, as completely as possible out of fire until the moment for action arrives. Taking into consideration the large mark offered by cavalry, and the range of rifled field-guns, together with the accuracy of their fire up to 3000 yards, it would appear that cavalry must be kept at about this distance from the enemy's defensive line, in or near which their artillery will be commonly posted. This is supposing that cover, such as a thick wood, a village, or rising ground, does not occur, behind which the cavalry may find shelter while forced to remain inactive. If compelled to remain in the open and under fire, cavalry should always be moved quietly about; generally somewhat towards and from the fire, because the effect of artillery fire depends so much upon the exact range being obtained. If by movement on our own part this can be continually

altered, the guns will not inflict very severe damage. To carry on this, however, for any length of time would tend to injure that delicate *morale* on the high tone of which so much depends; besides which, a certain amount of avoidable fatigue would be inflicted on both men and horses. As a general rule, therefore, cavalry inactive must either keep out of range or out of sight of artillery. As for the fire of infantry, unless actually attacking, they ought never to be exposed to it, even for the briefest space of time.

But although the bulk of the cavalry of an attacking force must very frequently be content to remain quietly out of fire while the battle is being fought by their comrades of the other arms, yet opportunities will sometimes arise for their employment, and it is the duty of cavalry leaders to watch for and seize them.

Page 158,
"Précis
of Modern
Tactics."
Major
Home,
R.E.

"As the infantry advances, seeking to gain ground to the front in extended order, they must be not only carefully supported from the rear, but as they are peculiarly liable to the attack of small bodies of cavalry on the flanks, cavalry must be held in hand under shelter in some convenient place, with orders to watch any attempted action of the enemy's cavalry, and move rapidly to the front if they show themselves. The cavalry must, in such a case, act by instinct, not by orders, and their leader must be most careful to watch lest, in the smoke and dust, the hostile cavalry move to the front without being noticed. In such cases it is of great advantage to get as near to the enemy as possible. Often a small wood or inclosure will offer itself, or some fold of the ground, behind which the cavalry may shelter themselves, unseen, from the enemy's position and remain in readiness. The approaches to such places may be over ground heavily swept by artillery or even musketry fire, but which it is quite possible to cross. So soon as a few infantry have got into the wood or inclosure,

the cavalry officer may push some men rapidly out—riding fast, a few men in extended order will usually escape ; they may be followed by a few more, until the whole force is got over. But cavalry cannot remain in such positions without the support of some infantry, who will prevent the enemy's infantry from making a forward movement with a small body and harassing the cavalry. In such positions the cavalry must be prepared to venture everything to check a hostile movement.

“The infantry with them will always give a support to rally on, and, working thus, a few cavalry may render very efficient service on the field of battle. But no large body can be so employed. If the ground enables cavalry to be thus pushed on in small bodies and kept covered from the enemy's fire, they will be of great value in checking any unexpected action on the flanks of the attack.

“When acting against the enemy's cavalry they have little to dread from projectiles, as the enemy, on account of his own cavalry, will be afraid to fire much.”

A very small body of horse, if they can, as is here suggested, be smuggled into an advantageous position, might very seriously interfere with the sweeping attack of hostile cavalry on advancing infantry ; but I do not think many instances would occur of their being able to assume such without the knowledge of the defending side.

This kind of dodge was, I am told, not unfrequently tried by the mutineers' horse during the Sepoy War, and I believe it generally resulted in their cover being saluted with a shower of shells from the artillery, such as rendered any but the most unexceptionably sheltered spots too hot to remain in. Now, such spots are not often found in front of a well-selected position ; and, as I have before remarked, if the position is only intended to be temporarily held, which is the same thing as assuming that both forces are in

movement, the cavalry of each would have about equal chances of action.

Other opportunities might also occur—as, for instance, when an infantry attack is successfully carried out—for small bodies of horsemen to push rapidly on across the space previously swept by the defenders' fire. Then, if the enemy's cavalry is deficient in boldness or weak in numbers, they might be of great service not only in routing the beaten infantry, but also by attacking in flank, should an attempt be made to retake the position, in which case the attacking force will be thrown more or less on the defensive, and their cavalry will have the opportunities and advantages previously shown to belong to that side.

The Attack of Cavalry in Large Bodies.

It has frequently been said that the day for the appearance of large numbers of cavalry on the battle-field is for ever past, and possibly the idea of uniting several thousand sabres for a grand charge would seem utter folly to a modern general.

This is, no doubt, partially true, in that great masses of the arm, such as charged at Waterloo and at many another famous battle of the last century, will never do the like again; but that cavalry may not be used in considerable bodies and for a great effort has not, it appears to me, been at all conclusively demonstrated.

The fact that it has not been so used since the general introduction of arms of precision, does not prove that it is impossible; rather would it seem that the solution of the numerous problems which have arisen from the altered conditions under which infantry and artillery now act, have so occupied the attention of tacticians that no leisure has been left them to examine the real effect of these

conditions on the third arm. Some blame must also attach to cavalry leaders, who seem to have tacitly accepted the meagre rôle assigned to their own branch, instead of endeavouring to ascertain and make known what modifications in organization and tactics are necessary to render it capable of useful and glorious employment in battle.

It does, however, appear to be the case that opportunities will seldom arise for a larger body than a single brigade of eight or ten squadrons* to act together—that is, to make a united attack at any one point—although cases may arise when several brigades might be employed to attack simultaneously at various points, with a common object.

A single brigade, however, will ordinarily be sufficient to do all that cavalry may legitimately attempt; and this will be the more true if the single-rank system is adopted. For, whereas it has always been a principle for cavalry to attack in two lines (and a reserve), and that the above formation provides a natural second line, without, as I believe, at all impairing the effective force of the first, it follows that eight squadrons will cover the same front and depth, and deliver as powerful a charge, as sixteen squadrons in the present two-deep formation.

The majority of authorities on tactics seem decidedly to admit the possibility of considerable bodies of cavalry being employed to advantage on the battle-field, and in some instances the admission seems to have been wrung from them, as it were, in spite of themselves, and in contradiction to previously stated theories. It should be remembered, also, that these men, though doubtless of the

* When speaking of a "squadron," I mean a squadron in two lines, i.e., a front-rank squadron, with its corresponding second line ditto. The two ought to be as inseparable as front and rear rank are now; and the strength of the squadron would remain the same.

highest talent, are, I think, without exception, officers of infantry, artillery, and engineers, and can have but little practical acquaintance with the working of cavalry. Their opinions refer only to a cavalry working in its present heavy and solid formation, and this, we have already seen, must be discarded as a first step towards re-developing the fighting power of the arm.

Granted this, and also the existence of a cavalry fit for its work, what will then be wanted is a clever and bold leader—a second Seidlitz, a new Murat, capable not only of seeing, but also of seizing and turning to the utmost account, the great but very transient opportunities that will occur for the action of cavalry in large bodies.

Referring to the description I gave, some pages back, of the general method of fighting adopted by infantry as now armed, it will be seen that it was remarked that such an attack will seldom extend over a front greatly exceeding 300 yards, it being now considered that it is of no advantage to direct several battalions in the same alignment on exactly the same point of attack.* Strength is gained by the constant and skilful supporting and feeding of the fighting line from the rear. Each battalion attacks on its own front, and if a general attack is made, every one of these would have a special object assigned to it. But such attacks all along the line will seldom be pushed beyond the second stage, being intended mainly to hold the enemy; that is, to prevent him changing front, or otherwise manœuvring to meet an attempt on his flank or rear.

This sort of front attack occasionally produces very severe contests in certain places, either for the possession of important points in front of the general line, or perhaps because the commanders are unable to restrain the forward movement of their men. The great difficulty of regulating or withdrawing from a combat since the universal intro-

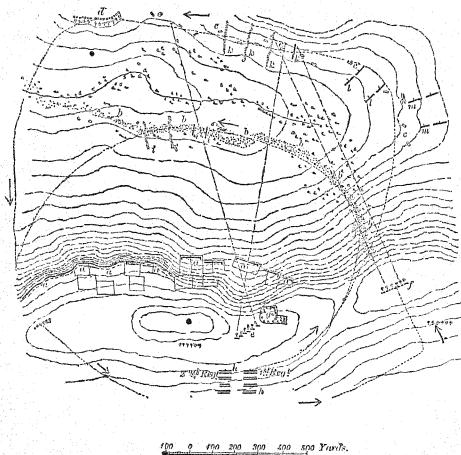


DIAGRAM.

The sketch represents a cavalry brigade of two regiments attacking the assaults of a position.

- a, a, a.* Defensive position.
- b, b, b.* Enemy's firing line.
- c, c, c.* Enemy's supports.
- d.* Enemy's divisional artillery supporting the attack.
- e.* Battery of defenders' artillery.
- f.* Battery of H.A. attached to cavalry brigade, brought from its original position to support advance of the latter.
- g.* Copse occupied by defenders.
- h, h.* Cavalry brigade sheltered behind the ridge.
- i, i, i, i.* First and third squadrons, first regiment, attacking enemy's firing line.
- k, k, k, k.* Second and fourth ditto attacking line of supports.
- l, l.* Left wing; *m, m.* Right wing of second regiment.
- n.* Position of cavalry leader.

The dotted lines show the course of the cavalry.

duction of breech-loaders is now well understood. Flank attacks, in some shape or other, seem to be invariably—I suppose necessarily—attempted, and this, as well as the practice of having a number of small reserves, which are freely used to supply the losses caused by the devastating nature of the fire, causes a great elongation and attenuation of the line: so much so that the continuity of its various parts may, and often does, become lost, and is very difficult to restore, owing to the absorbing nature of the local struggles in which the troops may become engaged in various parts of the field; so that not only are formations very loose and extended, but the fronts of the fighting forces become very great in proportion to their numbers, and bodies of troops are apt to be left more or less isolated.

Here is presented a state of things so extremely favourable to the action of cavalry, that, if the ground be also suitable, it is difficult to say what they may not achieve under competent leaders. Generally speaking, and for the same reasons as have been previously adduced, the cavalry of the defensive side will have the most favourable opportunities; but the circumstances under which attacks can be made are so infinitely varied, and so much depends upon that unknown factor, *the ground*, that it is extremely difficult to lay down anything positive on this head. It would, however, seem to be the duty of cavalry, under any circumstances, to frustrate all attempts of the enemy to turn the flanks of their own force; and this, it appears to me, they would be quite capable of doing, if assisted by an efficient horse artillery.

The usual and most convenient post for large bodies of cavalry is in rear of the flanks, positions being selected where they not only have room for rapid deployments and so forth, if an onward movement is intended, but whence also they can watch for any indication of an outflanking

movement on the part of the enemy. If this part of their duty is properly performed, they would, in the majority of cases, obtain a sufficiently early intimation of the enemy's projects to enable them, being, as they are, so superior in speed to the other arms, to get to the reverse flank or proper rear of the troops attempting the turning movement. Once such a position is attained, they might attack with every possible chance of success; and, if successful, the loss ought to be but slight, seeing that they would be riding in the direction of their own infantry, and would soon be safe enough. It is true that a regularly planned movement to turn a flank is generally covered by cavalry and artillery, and if the strength of these arms is at all equal to that which the defenders may have at their disposal, the attempt to turn the tables on the outflanking force would become exceedingly dangerous, if not impossible; nevertheless, cavalry soldiers must remember that reckless valour and skill in leading have often obtained successes quite disproportionate to the theoretical chances in favour of the attacker. Regular turning movements on a large scale, as practised by Frederick the Great and his followers in the art of war, are now obsolete, being liable to be foiled by other means than the one suggested. Flank attacks seem now to be generally brought about by a continued extension on the part of the enemy, growing at last into an envelopment of the flank threatened, and becoming locally a front attack on that point. Such a movement, if attempted on ground favourable to cavalry, would almost certainly expose a flank to their charge. Even if not, the danger of leaving such a movement unopposed is obviously so great that, in default of other troops, it might frequently be necessary to call upon the cavalry to expose themselves to the greatest dangers, even if it seems impossible to do more than check the enemy, since a short delay at a critical

moment may be of the greatest importance to the army generally.

Commonly, however, the situation would not be unlike that previously described, because the tendency of attacks which are flank attacks with regard to the position of the whole army is to become front attacks locally. To us the main difference lies in this, that the cavalry advance would have to be made at a much earlier stage of the fight than when a direct attack is to be crushed; and for this reason, that if a flank attack is allowed to develop itself, it is likely to have an injurious moral effect on the whole defending army, who at the same time, perhaps, are being heavily pressed in front.

Partly on this account, and partly also because of the increased probability of the enemy's horse being in force in this part of the field, it seems fit that such an attack should not be made except by a considerable body. The principle of assailing infantry with extended squadrons should invariably be adhered to, but no more need be used in this manner than in the attack first described. The remainder of the brigade would follow in a regular and well-ordered line, and there would be in addition a reserve of one or two squadrons.

The celebrated charge of Bredow's brigade at Mars la Tour is an instance of cavalry being used, with perfect success, to defeat an attempt of the enemy to outflank an army on the defensive; and what is remarkable is that the attack appears to have been made openly and *directly* on the enemy, some at least of whom were fresh troops, and had suffered but little loss.

The circumstances under which it took place are as follows:—The Second German Army had, on the 15th August, turned Metz by a *détour* to the south, with the intention of arresting the retreat of Marshal Bazaine's

army on Verdun. On the march being resumed next day, the 3rd Army Corps, commanded by Lieutenant-General Von Alvensleben II., soon found itself in the presence of masses of French, who had bivouacked about Vionville and Gravelotte. Although only supported by cavalry (the 6th and 5th divisions), General Von Alvensleben did not hesitate to throw himself on Bazaine's line of retreat; and, in fact, he succeeded in blocking the road to Verdun, voluntarily exposing himself to the attack of greatly superior forces, in the hope that he might be able to delay the enemy until the main body of the army should arrive to his assistance.

The other corps being, however, a great way off, Von Alvensleben found himself, about two o'clock in the afternoon, having been fighting since half-past nine o'clock a.m., exceedingly hard pressed, particularly on his left flank, which was almost enveloped by the enemy. Now, it was absolutely necessary, not only for the attainment of his original object, but in fact for the very existence of his corps, that he should maintain his position until supported. In these desperate straits he was forced to have recourse to cavalry, and ordered a charge which entirely freed him from apprehension in that quarter during the remainder of the action.

"It was, of course, to be apprehended that a cavalry attack undertaken against intact infantry and powerful lines of artillery, neither of which had been previously shaken by artillery fire, must prove a total failure, or, at least, cause immense losses; still it had become necessary to demand the sacrifice from the cavalry for the good of the army, and, above all, in order to check the enemy's advance and gain time.

"Bredow's cavalry brigade had present, at the moment it was ordered to effect a breach in the front of the 6th French Corps, only six squadrons, viz., three of the 7th Cuirassiers

"The
Franco-
German
War."
Bor-
staedt and
Dwyer.

and three of the 16th Uhlans. There was not the slightest hesitation on the part of the brigade in devoting the last drop of its blood to a task which threatened these squadrons with total annihilation, and seemed almost impossible to perform. But duty and military honour pointed the way.

“The six squadrons crossed the high-road to the west of Vionville, taking at first a northerly direction, formed in a close column,* the cuirassiers leading, till they arrived near the wood. Here the head of the column wheeled to the right;† and when the new direction had been gained, the word was given to deploy to the right, first into squadron and then into line of the brigade, all of which was done under a heavy fire of the enemy’s artillery. The three cuirassier squadrons, which, being on the left, of course got into line first, commenced the charge forthwith; the 16th Lancers, having to wait till its right squadron came into line, followed immediately, so that, at first, a charge in *échelons* took place unintentionally. In a moment the batteries, now vomiting flames, were reached with a loud hurrah, and the gunners cut down at their guns, when the whole brigade, which had by this got into one line, charged the long lines of infantry in rear, who received the rush of the cavalry with a heavy fire. These lines, too, were broken through, and at such a speed that but few of the French had time to fire a second shot. Sabre and lance made dreadful havoc in the broken ranks of the enemy. The main object of the charge had been attained beyond all expectation, but carried away by the ardour of combat, this impetuous band of horsemen swept irresistibly forwards, despite all endeavours of the officers to rally and re-form the men. The latter pounced upon a line of mitrailleuses drawn up in rear of the infantry, without heeding in the

* Of divisions.

† i.e., in the direction of the enemy they were about to attack.

least the snarling fire of these instruments. Some of the foremost horsemen had reached the line of the mitrailleuses with the last effort of their horses, and began to cut and stab at the artillerymen, endeavouring to turn some of the pieces round and carry them off as trophies, when, quite unexpectedly, the French 7th Cuirassiers, belonging to Forton's division, posted in the vicinity, issued forth from the wood on the old Roman road. One of its squadrons penetrated at once into one of the intervals between the disordered Prussian squadrons; the remainder of the regiment and the dragoon brigade followed at a trot. At the same moment French hussars and chasseurs, passing through the intervals of the second line of their own infantry, fell upon the right of the uhlans, so that the six hitherto victorious Prussian squadrons, finding themselves attacked on all sides, were compelled to retreat. Hotly pursued by the French cavalry, they were compelled once more, with their blown horses, to force a way through the enemy's masses of infantry. It was a desperate ride for life and death, and cost great sacrifices. It was therefore no wonder that the French bulletins exaggerated, as usual, this failure of the Prussian arms, and asserted, 'The cuirassier regiment of Count Bismarck was annihilated.' It is quite true that of the 7th Cuirassiers there came out of this sanguinary hand-to-hand combat only 7 officers and 70 men, and of the 16th Uhlans only 6 officers and 80 men; but both regiments saved their standards, and were able, after having recalled each its detached squadron, to appear on the field the same evening with two squadrons* per regiment. There can, therefore, be no question of annihilation; whereas it is quite certain that the sacrifices demanded from the cavalry in a most critical moment of the engagement were repaid by the complete

* "The next says 'four weak squadrons,' but this is afterwards corrected."

success of the manœuvre. For the fatal attack of the French 6th Corps against the left wing of Buddenbrock's (6th) division was completely checked, and never resumed—a proof how much the French troops were shaken by the vehement attack of a few Prussian squadrons."

The first thing that strikes one in this account is that the infantry are expressly stated to have been *intact*, and also supported by *powerful lines of artillery, neither of which had been previously shaken by the fire of the Prussian guns.*

The infantry, however, seem, as is natural, to have been extended in a "fighting line;" and Boguslawski hints that they were short of ammunition. If it be true, however, as above stated, that "*but few of them (the French) had time to fire a second shot,*" the exact amount of cartridges they may have had in their pouches seems immaterial. It appears, then, that this cavalry successfully attacked fresh, and by no means demoralized, troops in their usual fighting formation and backed by an efficient artillery. What, then, comes of the theory that cavalry are powerless against the breech-loader and obsolete on the field of battle?

Secondly, we have to observe the comparatively small number of squadrons, only six, that sufficed to produce so great a result; and, thirdly, that the loss, undoubtedly enormous, seems to have been in a great measure *avoidable*. For, judging from the narrative, no very serious loss could have been encountered until the exhausted and disordered horsemen were surprised and attacked in turn, by at least double their number of the enemy's *cavalry*. So we see that, after all, it was not the deadly breech-loaders or the far-reaching rifled guns that inflicted chastisement on these daring squadrons, but their own "obsolete" arm. No doubt, those who escaped from the *mêlée*—probably few enough—had to retreat under what Boguslawski terms "a fearful fire," still further reducing the number of

these heroes. We may indeed wonder that any ever returned at all!

The chief reason for this sad termination to so glorious a charge appears to have been the fatal plan of attacking in only one line. Probably the gallant Bredow, thinking that he would be liable to fail in attaining the object of his charge—which was of vital importance to the army in general—if he subdivided his already small force, nobly resolved to sacrifice himself and it, provided only success might be obtained. It is possible he may have been right, and in any case the effect produced was well worth the cost; but it is not difficult to see now, what no doubt appeared very uncertain at the time, that four or even three squadrons in the front line would probably have produced all the effect of the six that actually attacked, and the remaining squadrons following in reserve would have, at all events, done something to preserve the whole from being so cruelly slaughtered by the French horsemen.

Great stress is laid upon the blown and exhausted condition of the Prussian horses. Colonel Bonie says:—

“On the side of the Germans, as well as our own, charges were invariably made at a gallop over too great an extent of ground; horses get blown after galloping 1000 to 1500 yards. . . . Look at the attack of Bredow’s brigade. Taken in flank by our cavalry, it was so exhausted that the men could get no more out of their horses; they were entirely at the mercy of our men, who cut them down like sheep. The attack proves the absolute necessity of a reserve, which following the movement of the attackers without pressing on them, and arriving fresh, completes the success, and profits by the exhaustion of the enemy. The *échelons* of Bredow’s brigade obtained a first success, but could not preserve it; having no supports they were at our mercy.”

Colonel
Bonie,
“The
French
Cavalry.”

I confess it appears to me that the whole secret of the success of the charge lay in the pace at which it was made ! Borbstaedt's account renders this exceedingly plain. "In a moment," he says, "the batteries were reached. The lines (of the infantry) were broken through at such a speed that few of the French had time to fire a second shot !" This is how a charge ought, nay must, be made to be successful against modern firearms. Had a slower rate of speed been adopted by the Prussians, they would have taken several moments to reach the guns, each French soldier would have had time to fire several shots, and how many men would have lived to reach that second line ? The guns, indeed, might have been momentarily taken, but the attack must have failed against the infantry, and there would not even have been that "first success" so slightly spoken of by Colonel Bonie. The loss would have been at least as great, and the object of the attack would not have been attained.*

* "This glorious charge of Bredow's was by no means the only one that day ; a large part of the force on both sides was cavalry, and it was pretty freely used. The French cuirassiers bravely attacked the Prussians several times, but without precaution and apparently without any definite object. The Prussian horsemen were better, but by no means perfectly, handled ; nevertheless they won this battle, which, with the sole exception of Sedan, was the most important, in its results, of the whole war.

"A French writer, speaking of this battle, says that it was by means of the action of the cavalry that the enemy was able, at the commencement, to supply his numerical inferiority, by replacing the troops which were wanting by reiterated charges, which brought a period of forced quiet, and so allowed time for reinforcements to arrive.

"When we consider that Prince Frederick Charles, by means of the cavalry, was enabled to hold in check for the greater part of a long summer's day the whole of Bazaine's army, 180,000 strong, with only 24,000 infantry, it must be acknowledged that the effectual action of cavalry, even on the very field of battle, is not, despite modern inventions, a matter of the past, as some are prone to argue.

* * * * *

"On the Prussian side there were 22 regiments in the field, of which 19 took part in the various charges ; the French brought 28 under fire, of which 22 were actually engaged. Thus about 25,000 horses were engaged.

To talk loosely about "charges being made at the gallop over too great an extent of ground" is folly, and worse than folly. The fact is (patent, I should imagine, to the most careless thinker) that cavalry, when they come within the dangerous zone of infantry fire, which, as we have seen, extends to 1100 yards,* must gallop, or be practically annihilated. Even the fire of artillery alone is sufficiently formidable to make it a matter of high importance to remain exposed to it as short a time as possible. Were it not the case that any tolerably rapid rate of advance renders necessary a fresh laying of the gun and corresponding adjustment of shell-fuse, it would become imperative on the cavalry to commence the gallop at even a greater distance.

It would consequently appear that for the successful attack of infantry by cavalry, there are two essential requisites—first, that the advance should be made with the utmost possible rapidity; † and secondly, that the formation should be in at least two lines.

The Prussians obeyed the first maxim, but neglected the second. The pace at which their charge was made caused it to be successful beyond expectation against infantry and guns, but they had to pay the penalty of their faulty formation in losing afterwards two-thirds of the force that attacked. Had, however, this charge been

Eight times were there charges by the cavalry on both sides on artillery or infantry, in which the hostile cavalry came to the rescue, and twice there were serious hand-to-hand contests of large numbers of horsemen. For ten hours the battle continued, and some of the German regiments were seventeen hours in the saddle."—Captain Hozier; "Lecture delivered at the Royal U. S. Institution," 15th March, 1872.

* Sometimes much further. The French fire at St. Privat is described as being "murderous" at a distance of 1500 paces, say 1200 yards. An increase in the effective range of rifles is also to be anticipated.

† Consistent with the maintenance of a due degree of order. A very high rate of speed can be attained, even when rigid "closing in to the centre" is enforced, together with an excellent line, in single rank.

made in the formation I have suggested, I cannot help thinking that their success would have been certainly as complete, while the *unnecessary* sacrifice of brave men would have been avoided.

Borbstaedt's account tells us that the two regiments previously in close columns, *i.e.*, in column of sections, or as we should say, divisions, first formed squadrons to the front and then *échelon* of regiments also to the front (Fig. 3).

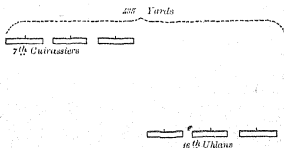


FIG. 3.—Order in which the Prussians actually attacked. Scale, $\frac{1}{72500}$.

This last was unintentional, the order being to form line of the brigade. But apparently the leader of the cuirassiers could not brook to remain patiently under the heavy artillery fire, while the 16th Uhlans were getting into line; he accordingly sounded the gallop the moment his own regiment was formed up; in which course of action he very likely acted wisely, though contrary to orders. The incident, however, shows how difficult it is, even with Prussian discipline, to keep cavalry, for ever so short a time, inactive under fire. Now, under the system I have proposed, the two squadrons that got first into line would have attacked in extended order, followed by their proper support of the second line, also extended (Fig. 4). These two squadrons would have presented about the same front as the six original squadrons in one line,* they could certainly have advanced

* Six British squadrons of 60 files each, in line, would cover 435 yards of ground. Two ditto single rank, extended as before laid down, would cover 434 yards.

the others commenced their advance, would have followed to complete their work;* and when the French cavalry made their appearance, they would have had to deal first with the leading line of these, presumably in much better order than the Prussians actually were, and while they were endeavouring to overwhelm it, which their superiority in numbers would no doubt have allowed them to do in time, they would have been themselves assailed in flank by the second line. In the mean time, the extended squadrons would have been rallying in rear, and they too might have been able to take part in the fight or cover their comrades' retreat.

I think in this way the Prussians would have had a chance of extricating themselves, while, at all events, we should not have heard of their being "cut down like sheep" by the French troopers. As to having to force their way back through masses of the enemy's infantry, or to retire under a tremendous fire, as Boguslawski puts it, these are vague expressions, probably inaccurate, and intended to account in a measure for the heaviness of the loss sustained, and to give the reader a general idea of the perils by which these brave men were surrounded. In particular, it is difficult to see where the "masses" of infantry could have come from, since the greater portion of those in this part of the field seem to have been already ridden over. Nevertheless, as before pointed out, cavalry making a direct attack on the enemy's lines of infantry will always be liable to suffer severely in their retreat, unless, indeed, their own infantry and artillery are prepared for an immediate advance. In any case it would be the special duty of the horse artillery and *mitrailleurs*, if any are at hand, to cover and protect the retiring horsemen.

* The squadrons in close order would probably be *écheloned* on the exposed flank of those extended.

Cavalry in Large Bodies on the Offensive Side.

We have hitherto been considering the flank and direct attack of considerable bodies of cavalry appertaining to a force acting on the defensive, and it has been stated that cavalry should always endeavour to frustrate a turning movement on the part of the enemy. It is, however, very feasible for the attacking side to make a powerful use of cavalry to facilitate and assist the turning of a flank, more particularly if the defenders are weak in that arm. Major Home says—

“Cavalry will often be of great use in such movements, for it may be possible, from the rapid movement of that arm, to throw an overwhelming force of cavalry on the rear of the threatened flank; the moral effect of a force of cavalry appearing there would undoubtedly exercise great influence on the stand made by the troops attacked, who would find their ammunition columns, etc., being assailed and taken in the rear by the cavalry while they were being pressed in front. It is, perhaps, here that the tactical action of cavalry in large bodies may be of great importance; but if the cavalry be so used, care must be taken that they do not separate to too great a distance from the infantry moving to the flank; and the cavalry leader must keep up a tactical connection with the infantry at all times, and warn it of all movements that the enemy may make to meet the flank attack.”

Page 160,
“Précis of
Modern
Tactics.”
Major
Home,
R.E.

Where, however, the enemy is possessed of a numerous and good cavalry, such attempts would always have to be made in great force. They should invariably be accompanied by all the horse artillery that could be collected.

Cavalry may also be used in large bodies to inflict a crushing blow on a beaten or discomfited enemy. It may happen, on the one hand, that the defenders have been

dislodged from their positions, in which case the victorious army hurls forward all its available horse, to try and drive the enemy into irremediable confusion.

Colonel
Hamley,
"Opera-
tion of
War,"
chap. v.

"Probably the best opportunity for a decisive attack would be in the case where the crest of an enemy's position has been partially carried by infantry, and cavalry, following in support of the attack, and forming on its own side of the slope, passes over it to charge the retiring troops and their supports. There are, however, no examples of such attacks in the campaign of 1870.

"In most hard-fought battles there comes a time when infantry grows dispirited and despairing beneath the stress of combat. Only its braver spirits possess the energy to use their arms; the rest await but an opportunity to quit the field, or are already quitting it. At such times a great attack of cavalry will succeed and decide the battle. Neither of such, however, does the campaign in France afford example."

Cavalry leaders would probably see fit to exclude such attacks from the general rule of assailing infantry with extended squadrons; and for two reasons—first, because it is probable that the infantry would be too demoralized to pour a very heavy fire on the attacking squadrons; and, secondly, because of the very great likelihood of encountering the enemy's cavalry, whose duty it is to protect the retreat of their own infantry at any cost.

When, again, any army occupying a defensive position has repulsed with loss the attack of the enemy, the speedy advance of a large body of cavalry may have a very decisive effect. This is a case in which, the ground being favourable, it is proper to hazard a direct attack of cavalry on a large scale, since the whole force would, it is presumed, be ready for an immediate advance, to follow up and take advantage of the action of this arm. All the

artillery, in particular, would be pushed to the front, and would endeavour to concentrate their fire on the enemy's reserves and second line, and also on any horse that may make their appearance, thus preparing for the cavalry to sweep all before them.

Attack of Cavalry on Artillery.

It is admitted by tacticians that, while the fire of infantry has attained to such power as to make it appear, at first sight, as if they had established an unconquerable superiority over cavalry, yet the improvements which science has made in artillery have by no means led to equal results—equal, that is, from our point of view; for the immense range and accuracy of modern field-guns, unaccompanied as it is by any increase in rapidity of fire, does not render them so formidable to cavalry as an additional measure of destructiveness at close quarters would have done.

In this, to us, most important point, they exhibit a decided inferiority to smooth-bored ordnance. The segment shell and the shrapnel are doubtless formidable projectiles, though possibly not more so than the corresponding spherical case of the old sort. Neither one nor the other can be employed at really short ranges, and in any case their effect entirely depends upon the nature and degree of excellence of the fuse in use. It was the grape and canister of the smooth-bores that used to tear such gaps in the cavalry ranks whenever guns were attacked in front. It is true our field-guns have a canister shot, but I believe I am correct in stating that its effect is by no means equal to that from smooth-bores, which, indeed, one can easily understand. Modern artillery is no worse to face at 500 yards than it is at 1500, and we know

that at the latter range the effect of its fire on cavalry in motion is nothing extraordinary.

Captain A. Von Bognslawski, "Tactical Deductions from the War of 1870-71."

"Against artillery alone cavalry has now, at least as good a chance as ever it had. If it can get quickly over the interval between 2500 and 1500 paces, so as then to push forward rapidly upon the guns, the latter are in an awkward position, because they have no longer the advantage of the effective grazing fire of case-shot from the smooth-bore. At long ranges cavalry will suffer more from rifled guns than they formerly did from smooth-bores, but at short distances they have their revenge."

The recent experiments at Okehampton have been the subject of much comment and self-gratulation in the periodicals and lecture-rooms of the day. But I do not see how these experiments, however useful to artillery from a technical point of view, can be held to have added anything to our general stock of tactical knowledge, or that rifled artillery has been shown to be more powerful than was supposed. No one who has read accounts of the battles in France in 1870 can be unaware that the German artillery was effective at ranges up to 4000 paces, and even more; and no one who knows anything about the projectiles fired from rifled guns could have been astonished to hear that rows of targets, representing cavalry and infantry in any formation, would be a good deal knocked about even at a range of 3000 yards, if completely exposed to view.

Okehampton practice, regarded from a tactical standpoint, gives no results whatever. A very interesting experiment was, however, carried out a short time ago in India. A "dummy" force, of all arms, was placed in position—cavalry, infantry, and artillery being each posted by experienced officers of the same arms. The cavalry was in columns behind the flanks, where, however, it would

have had perfect liberty of motion. This enemy was then assailed by a real army of infantry and artillery. All the stages of the attack were regularly worked through. On examining the targets after the action, the cavalry, as might have been expected, were found almost untouched, although a very heavy fire of all arms had been maintained on the position for several hours.

Cavalry at rest will always be under shelter. There is no doubt they can manœuvre under a very heavy artillery fire; and that any fire will prevent them from capturing guns, even in the present formation, if other circumstances are favourable, is not to be believed, and has, in fact, been repeatedly disproved; as witness the following incident, taken from Hozier's history of the campaign in Bohemia in 1866:—

“When the 5th Cuirassiers had crossed the bridge, and had gained the further bank, it perceived the Austrian artillery train on the road between Olmütz and Tobitschau, which, on account of the action going on near the latter place, had been halted north of Rakodan, and appeared to be without any escort.”

Page 144,
“Seven
Weeks’
War.”
Captain
Hozier.

“Colonel Bredow, who commanded the 5th Cuirassiers, sought permission from General Hartman to attack the artillery train. This permission was accorded to him, not however till the Austrian artillery had noticed the Prussian cavalry. The gunners unlimbered, and opened upon the horsemen with shell, but at a long range, for they saw not the 5th Cuirassiers, who were on their own side the stream, but the 1st, who were still near Biskupitz.

“Bredow, under cover of some undulating ground, formed his regiment in *échelon* of squadrons for the attack of the guns. The first squadron he kept towards his right, to cover the flank of his attack from any Austrian

cavalry which might lie in that direction; the second and fourth squadrons he directed full against the front of the battery, and supported the second with the third as a reserve.

"The squadrons moved forward in perfect lines, slowly and steadily at first, seeming to glide over the field, gradually increasing their pace, regardless of the tremendous fire directed upon them, which emptied some saddles. When within a few hundred paces of the battery they broke into a steady gallop, which increased in rapidity at every stride that brought the horses nearer to the Austrian line. All the time of their advance the gunners poured round after round into them, striving with desperate energy to sweep them away before they could gain the mouths of the cannons. . . . The flank squadrons, bending a little away from their comrades, made for either end of the line of guns, in expectation of finding there some supporting cavalry. The two centre ones went straight as an arrow against the guns themselves, and hurled themselves through the intervals between them upon the gunners. Then the firing ceased in a moment. . . .

"Eighteen guns, 7 waggons, and 168 horses fell into the hands of the Prussian force, a noble prize to be won by a single regiment. It lost only 12 men and 8 horses; for the swelling ground and rapid motion of the gliding squadrons baulked the aim of the gunners, who mostly pointed their pieces too high, and sent their shells over the heads of the charging horsemen. Of the 18 captured guns, 17 were conveyed to Prosnitz. One was too much disabled to be moved."

The tactics of artillery have undergone a change no less important than that which has been forced upon the infantry, one of the most striking points being the increased number of guns which are now brought into action,

not because the total amount of artillery with an army is larger than formerly, but because it is now a recognized axiom that every gun which is not brought to bear on the enemy is so much power wasted. There is no longer such a thing as "reserve" artillery.

The whole number of field-guns with an army is divided into "divisional" and "corps artillery," much in the same way as cavalry is divided into "divisional cavalry" and "the cavalry division." In neither case is the larger body considered a reserve. The cavalry division, as we know, covers the front of an army on the march; the corps artillery also, says Colonel Home, is, as well as the divisional artillery, to be considered somewhat in the light of an advanced-guard. It is, in fact, brought into action at the earliest possible moment; and we now see that the artillery of an army in movement, instead of lumbering along in rear of the columns, is always kept as much to the front as is consistent with safety. For instance, not only are the advanced parties, or vanguard, invariably provided with guns, but the whole mass of the divisional artillery will generally march at the head of the main body of the infantry, while the corps artillery will very probably be found in the interval between the divisions.

Being the furthest reaching arm, it naturally falls to the lot of artillery to commence the action. The rôle for guns on the offensive is to fire on the enemy's infantry, and attacks are always, if possible, preceded and "prepared" by a concentrated fire of many pieces; while, on the other hand, the defenders' artillery endeavours to keep down this preparatory fire. It is consequently of importance for the offensive army to get a good number of guns into position at an early stage of the action, and this has led to the adoption of the order of march above indicated, so that

the requisite effect may have been already produced by the time the infantry have come up and are deployed ready for the attack.

Now, although a concentration of fire by no means implies concentration of pieces, still it will very frequently happen, from the disposition of the batteries on the march, that a great number of guns, intentionally or otherwise, will form up in close proximity to one another, if not actually upon the same line, and this is called "the great battery."

The practice of detaching special escorts for the protection of artillery seems likely to be generally discontinued, and rightly; for, as Major Home remarks, the collective number of sabres and bayonets detached to protect batteries, and *useless* as far as the attainment of the general object is concerned, is necessarily considerable—too great, in fact, to be spared from the fighting force. Consequently, artillery in future will, as a rule, have to depend upon a tactical support from the other arms; which simply means, so far as field artillery are concerned, that they are not to place themselves in situations where they cannot be defended, if attacked, by the fire of the infantry with whom they are acting.

In the case of the early formation of a "great battery" it would appear that this tactical support might be in a great measure wanting, at all events for some time, since it takes a single division of ordinary strength, advancing by one road, at least an hour to get into order of battle. A bold and enterprising cavalry would therefore have a splendid opportunity of striking a great blow at the very commencement of the action, by charging the massed guns while as yet not more than two or three battalions will have had time to deploy, and even these may perhaps be already hotly engaged.

"The practice of bringing great masses of artillery into position at an early stage of the attack must, apparently, cause large proportions of the line of battle to be defended only, or chiefly, by artillery fire during at least a part of the action, because the guns will arrive before the main body of the infantry. The artillery of a corps, if formed into one great battery, would occupy nearly a mile of front. There would consequently be a considerable part of this front inadequately, if not entirely, undefended by infantry fire; and in a great battle there would be many such spaces. On the opposite side, the position more deliberately occupied would offer no such weak points; and if, as in many battle-fields, the ground between the hostile fronts is undulating without being intersected, or is marked by farms, groves, or hollow ways, there would seem to be no reason why masses of cavalry should not be assembled in anticipation opposite the probable posts of the enemy's great batteries, and sufficiently near for a rapid attack upon them. Supposing these batteries to be directed on the opposing line, 1500 yards distant, the cavalry, already posted considerably in advance of their main line, might, in the heat and smoke and absorption of the engagement, pass over the intervening space almost unperceived; in any case, to lay the guns accurately on the advancing horse at successive points of their final career would seem impossible, and even the time for many discharges would be wanting.

"Important opportunities, then, which recent tactics will afford to cavalry, will be the attack upon masses of artillery. Especially will this be practicable where the corps artillery pushes into action on the flank of the advanced-guard, pending the arrival of the main body, or when infantry are defeated and retiring covered by artillery fire. On the other hand, to protect the guns from such attempts, it will

Colonel
Hamley,
"Operations of
War,"
chap. v.

be necessary to assign bodies of cavalry to remain near them; and great conflicts of cavalry will ensue, when, if the squadrons attached to the guns are worsted, the artillery will experience the fate of the French batteries attacked by the victorious Scots Greys at Waterloo. In such cases it is evident that the security of the artillery must depend in a great degree upon the efficacy of the cavalry."

To assign, however, large bodies of cavalry to remain near the guns is contrary to what has been already laid down on the subject of escorts; and, much more than that, there would be, I should think, considerable difficulty in laying hands on a sufficient number of squadrons, unless indeed the amount of cavalry attached to *corps d'armées* was considerably increased for this very purpose, which is unlikely.

Of course the cavalry pertaining to the leading division or divisions would be generally available, but that would not amount to much more than a single regiment, manifestly insufficient for the protection of a large number of guns.

The commanding artillery officer would therefore be driven to rely in a great measure upon the general cavalry strength of the army, at least a part of which might be expected to be within reach; for although it is the especial duty of the divisions to cover the heads of all the columns, at the distance of at least a day's march in front, yet they would be sure to have drawn themselves together on finding the enemy in position, while all the time maintaining a vigilant watch on him and his movements. It will perhaps be laid down in future that a part of the duty of this corps is so to dispose themselves, previous to an action on a large scale, as to cover the advance of the artillery and the subsequent deployment of the infantry.

When cavalry are used as a protective force, the rule is for them to be in rear of the prolongation of the flanks of whatever they are guarding, whenever the latter is stationary or in position ; they then have their own front clear for an attack.

It is highly advisable in the present day that the cavalry should shelter themselves, whenever possible, behind a swell in the ground, copse, or cover of some sort, otherwise they will be sure to suffer loss. When necessarily exposed, they will find a species of safety in motion ; which should be slow, but tolerably continuous. They are not, however, on any account, to be so far from the battery, or whatever they are escorting, as not to be able easily to reach it before any body of the enemy could possibly do so.

The actual attack on artillery will nearly always be combined with an attack on infantry, the cases being rare indeed in which batteries will be found totally isolated ; this also holds good of the mass of artillery at an early stage of the fight. Later in the day, it is probable that some, at least, of the batteries will have advanced, and the mass of guns will have become more or less scattered ; still the space in front of them will usually be swept by infantry fire, and enterprises against small numbers of guns alone will be seldom practicable. Nevertheless, peculiarities of ground may alter the conditions, in which case the attempt may be made with confidence. One or two squadrons would often be sufficient for the purpose.

There are also occasions when batteries are sent to a flank, or detached to some spot for the purpose of enfilading a position ; and here, for once, an escort, very possibly of cavalry, might accompany them. If hostile guns do succeed in establishing themselves in a position from which they can enfilade the line, an attempt to capture or disable

them should always be made, and as the object is important, considerable risk may be run.

After an enemy has been defeated, or during a retreat, or when cavalry is detached to act against the communications, opportunities will occasionally occur for pouncing upon batteries or detachments of guns limbered up and in motion. These should be eagerly seized, and are grand chances for young officers.

Guns in position may certainly be attacked in extended order; but everything depends upon the nature of the support, whether special or tactical, cavalry or infantry. Of course guns, like everything else, will always, when possible, be approached from a flank; but this is not so important as in the case of infantry, from the less destructive nature of their fire.

It is laid down in the Austrian regulations that a portion of the attacking force should be sent against the guns in "swarms" (an irregular sort of extended order), while the remainder, in close line, charge the escort. This seems a very proper course when the support is a cavalry one, but when infantry fire has to be encountered, it would seem preferable to adopt the method previously proposed for the attack on that arm.

In our own regulations an attack in "extended order" is also inculcated; and I may remark, parenthetically, that it is surprising that the principle, once recognized, should not have been also applied to the attack on infantry, whose fire, within its own effective zone, is far more deadly than that of artillery. To precede, however, any such attack by the fire of dismounted skirmishers would be rarely practicable, even if advisable, whatever might be the nature of the support to the guns.

In the case of a single squadron attacking guns supported by cavalry, the charge might be executed somewhat

as follows:—Half a squadron, first line, would attack the guns in extended order, while the rear line would rush upon the escort with closed files; the odd half squadron would drop to the rear and act as a support to the second line, driving in on the flank of the enemy, if the latter seemed to be getting the best of it in the *mêlée*; or, again, they might assist their comrades, the actual captors of the guns, in disabling or carrying them off.

Another plan is to attack directly, instructing the extended files to edge away from the centre during the advance, when it is quite probable that the gunners, unable to see clearly amid the smoke and dust, will continue to fire to their front, while the assailants, pouring in on the flanks, may succeed in capturing the guns at a very small sacrifice.*

If, however, the support was composed of infantry, or, what is much the same thing, if infantry fire had to be met, it would probably be better to extend half a squadron front line, supported by the corresponding half squadron also extended, and to gallop straight down on guns and infantry together, keeping the remainder intact and well in hand as a reserve.

Guns surprised before they can get into action are the easiest possible prey to horsemen.

The difficulty of carrying off guns during an action is now greatly increased, for obvious reasons; but one of the greatest difficulties, and that not depending on any of our murderous improvements in fire-arms, is to stay the men at the right moment, and to get them to act coolly together after the wild excitement of the charge.

If the guns can be brought off under fire, the credit of the achievement is quadrupled; but this can hardly, if ever, be done, even if there is drag-tackle and plenty of

* Nolan.

horses accustomed to it, unless the drivers can be prevented from galloping off with the limbers and teams. If men could be taught, instead of pulling up and hacking at the unfortunate gunners, to dash on at once and try to capture the teams, there might be more trophies in the way of guns in the next war than has heretofore been the case.

When guns cannot be brought off, they may at least be disabled. Breech-loading guns can be best disabled by removing some important part of the mechanism, as the breech-block in the Armstrong. It would be a good thing if it was specially pointed out to our cavalry, both officers and men, how a gun of the enemy's field artillery could most easily be disabled.

In default of instructions, it is well to remember that, in all rifled guns, the removal of the tangent-sight is calculated to render the gun useless for that day at least. If interrupted by the enemy's cavalry in force, when endeavouring to carry off guns, at least shoot the horses; the guns are not then likely to be of much service to the enemy, and, if the action goes well for our side, the pieces are certain to be abandoned on the field.

Mitrailleurs.

Before quitting this portion of the subject, I must say a word on mitrailleurs. These weapons are the latest product of science, as applied to fire-arms. Tacticians, while allowing their formidable nature when skilfully used, do not seem as yet to be agreed upon the position to be finally assigned to them, or the proper methods of handling them to the greatest advantage.

They are not artillery, as the term is now understood, since they have no very great range nor any battering

power; rather must they be considered as "concentrated infantry," and as such they must be allowed to be extremely dangerous to cavalry. Yet we see that some were taken by the gallant handful that charged with Bredow at Mars la Tour.

As of field artillery, the attack on mitrailleurs will nearly always be coincident with that on infantry, with whom they are, I think, certain for the future to be closely associated.

When used by the defensive side, they will probably be brought chiefly to bear on the closed bodies which support the attacking line. These bodies, it is now known, suffer chiefly from the bullets which have been directed to, and have missed, the fighting line, since the defending infantry invariably concentrate their attention on the latter. If, however, the mitrailleurs are skilfully posted and handled, it is probable that their effect will be to cause these, endeavouring to avoid their terrible discharges, to open and spread themselves out in the same manner as the firing line; and if this is actually the case, cavalry will have so much the greater chance of crushing the infantry attack in the manner already described.

When it is considered necessary to attempt the capture of mitrailleurs, it would seem best to employ the smallest sufficient number of men, who would rush upon them with the utmost speed, and with very wide intervals. It is probable that horsemen will soon come to recognize in these machines their most cruel enemies, and will therefore feel a proportionate satisfaction when fortune grants them a fair opportunity for their capture or destruction.

Cavalry v. Cavalry.

Hitherto we have only considered the action of cavalry in attacking infantry and artillery, and in making general attacks on a large scale. I have given great prominence to this part of the subject, as it is only by general attacks, in which, of course, the enemy's infantry will be the principal objective, that cavalry can exercise a decisive influence on the field of battle. It has been frequently denied that cavalry can produce such effect, and too often this dictum is acquiesced in by cavalry officers themselves, who, accepting without examination what is termed "the logic of facts," are content to see their own arm relegated to what is, however we may seek to disguise it, a position of inferiority; for it is evident that if cavalry acknowledges its inability to cope with infantry and artillery, it cannot claim for itself an equality with those arms, and, however useful it may be in other ways, cannot pretend to have a decisive influence on the issue of any contest.

Whether, however, cavalry, either through the adoption of such tactics as I have outlined in the foregoing pages, or by any other means, will ever reassume its former importance on the battle field, the future alone can decide. In the mean time they will, in any case, find themselves not unfrequently engaged in more or less serious combats with their own arm; and this is the more probable, since all armies will now endeavour to cover their operations with a veil of horsemen, whose duty it will be, not only to hide the movements of their own army, but to discover those of the enemy. The intentions of the cavalry on either side being to a certain extent aggressive, conflicts between them are certain to ensue.

In a purely cavalry action, there are certain old and well-known maxims, an observance of which is necessary, now

as ever, to insure success. Chief among these are, first, the importance of infusing the utmost ardour and impetuosity into the attack; and, secondly, that of having, if possible, a last reserve to throw into the fight when all those of the enemy are exhausted. "With equally good troops, victory will fall to that side which holds the last squadrons in reserve, and launches them at the proper moment on the flank of the enemy, when engaged with one's own troops." It is in this way only that superiority in numbers can be turned to advantage.

Jomini,
"L'Art
de la
Guerre."

Here, also, the single-rank system, while paving the way to the attainment of the greatest possible velocity combined with order in the charge, displays its tactical superiority to that now in use, by providing an increased number of reserves out of the same strength of fighting men. It is more particularly on this point that the Duke of Wellington and other distinguished commanders have expressed themselves struck with the advantages of a system which now appears to be absolutely forced upon us, if cavalry is to retain its ancient fighting power.

In the case of small bodies of cavalry, in the formation advocated, the rear line provides a natural reserve in all cases. By no rashness or negligence can the commander deprive himself of this most necessary resource. With a single regiment or less number of squadrons, those of the rear line would wheel outwards on receiving the signal to attack and *échelon* themselves in rear of the flanks (Fig. 5). This would be part of the drill, and no special word of command from the leader would be required. The rear line squadrons would usually advance in squadron columns, a formation which would also be adopted by the leading line, according to circumstances, the rear line squadrons forming up when the gallop was sounded for the previously deployed front line.

It will be noted that this disposition is in perfect accordance with the principle which now prescribes the attack in double *échelon*; but the enemy would not only be attacked with twice the front which can now be shown, but half of the whole number of sabres or lances, at present almost wasted in the rear rank, would be placed in

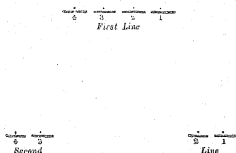


FIG. 5.—A regiment of four squadrons advancing to the attack, the second line *écheloned* in rear of the flanks. Scale, $\frac{1}{25000}$.

precisely that position whence they can best support and assist their comrades. They would protect the flanks during the advance, and, by assailing those of the enemy, would exercise the most decisive influence on the contest. If we compare a regiment in this formation with that of

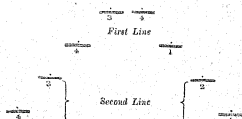


FIG. 6.—Attack in double *échelon* from the centre. Scale, $\frac{1}{25000}$.

a similar body in two ranks advancing in double *échelon*, and suppose them to be directed against one another, it is evident that the one in single rank would altogether envelop the other, and ought to inflict upon it an unequivocal defeat.

Although it would appear advisable, as a normal forma-

tion for the attack, to *échelon* the rear line in equal portions in rear of both flanks, it would, of course, be in the power of the leader to make any special dispositions he may deem appropriate to the situation. Double *échelon* can, for instance, be formed with great ease (Fig. 6), or, if one flank be deemed secure, the whole of the rear line may be brought to the other flank, thus forming an *échelon* of

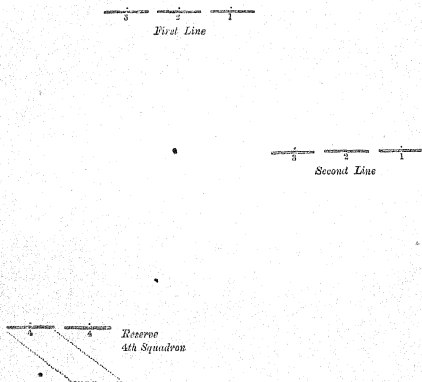


FIG. 7.—Attack in *échelon* of lines, with a reserve. Scale, $\frac{1}{1250}$.

lines. It would also be frequently desirable to detach a squadron as reserve, and this squadron would be conveniently formed into one line (Fig. 7).

With regard to large bodies of cavalry that always manœuvre and attack in several lines, we must remember that, every unit being now in two lines, the total number of lines will necessarily be doubled. It is, however, important to observe carefully the distinction between mere

regimental lines which are integral parts of the same body, and general lines of cavalry, each of which may be composed of a considerable number of squadrons.

Brigades of cavalry organized on the single-rank system would not usually consist of more than two regiments; a larger number being inconvenient to handle, on account of the extent of ground which each regiment and squadron must necessarily occupy. The natural formation of such a brigade for the attack would be with the second line of its regiments *écheloned* on the flanks on the same principle as laid down for a single regiment. Here the whole rear line of each regiment would move out to the flank, unless it was considered necessary to place bodies immediately in rear of the first line to fill accidental gaps, in which case the rear lines of the inward or centre squadrons would be easily and conveniently detached for that purpose. If the brigade was acting alone, a reserve of about two squadrons would be necessary in almost all cases (Fig. 8). In the diagram, I have shown, for clearness' sake, the second line and reserve as if deployed, but the preliminary advance would, of course, be made by the supporting bodies, and not frequently by the first line, in small columns or other suitable formation. The reserve might or might not be formed into one line before being engaged, but in any case the desideratum of three lines, combined with a good show of front and the protection of the flanks, would be attained.

If we now take a division composed of three brigades of two regiments each, on the same system, and suppose it to be manœuvring, according to the latest tactical ideas, in three lines, each consisting of a brigade, it is evident that there would be, in fact, six lines at the disposal of the commander. This formation, without in any way diminishing the strength of the three general lines, gives to the leader every chance of remaining with some reserve still

in hand after all those of an enemy of equal strength, in the ordinary formation, have been exhausted. It is acknowledged that the possession of such a reserve secures success to the commander who holds it.

Not only does the proposed system confer so obvious an advantage in the case of equal forces, but its value appears

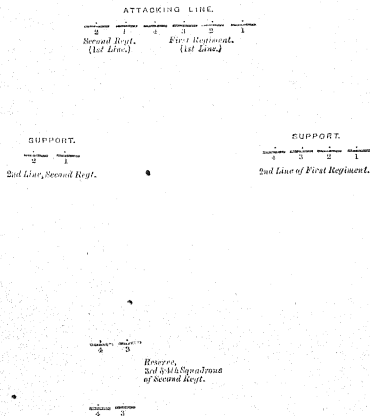


FIG. 8.—A brigade of eight squadrons attacking: two squadrons in reserve. Scale, $\frac{1}{2400}$.

equally evident when the numerical strength is inferior to that of the opposing enemy. If, for instance, the division possessed only two brigades against three of the hostile force, the divisional leader will still have an advantage in the number of lines at disposal, having four against three of the enemy, with an equal front. The first brigade being formed as before, with its second line *échéloné* on the

flanks, he would be able to bring the whole weight of the second brigade to bear on that flank where its action would be of the greatest value, without fearing for the other flank, which is sufficiently guarded by the rear line of one of the regiments of the first brigade, and would not, moreover, deprive himself of a small last reserve, which might be formed at any moment out of one of regimental rear lines of the second brigade. It appears to me that the fact of the flanks of the first general line being always self-secured, thereby enabling the commander to dispose without fear of the remainder of his force, so as to produce the greatest possible effect, is an advantage belonging to the single-rank system, the importance of which it would be difficult to overrate. It would enable, in fact, a small division of only 16 squadrons to contend with a fair chance of success against one of 24 squadrons in the present formation, and with a cavalry numerically so weak as ours, this alone should render it deserving of serious attention.

The occasions on which the cavalry of two armies are called upon to encounter one another are numerous enough, but it should be remembered that while audacious enterprises on the part of the enemy's horsemen are to be checked by equally bold and dashing counter-strokes, yet cavalry combats on a large scale should be avoided, since they can have no decisive effect on the fortunes of either army, and simply waste an expensive, though indispensable, arm. It is not, of course, intended that our cavalry should give way before that of the enemy; on the contrary, the latter should be fallen upon and destroyed whenever a favourable opportunity may present itself; but it is to be understood that they are not to indulge their warlike ardour in wanton engagements, particularly in those on a large scale. The cavalry divisions are likely to be par-

ticularly tempted in this respect; yet it is their duty not to fight, but only to resist being pushed back—a somewhat delicate distinction, a true appreciation of which is one of the most necessary qualifications of a cavalry leader.

However, plenty of legitimate opportunities will always occur for measuring swords with the enemy's horsemen; and as in action the cavalry of the defensive side will be always ready to dash at the assailing infantry, should a favourable opportunity present itself, so will the squadrons appertaining to the latter constantly hold themselves in readiness to check their inroads before much mischief can ensue. In the case of a regular attempt to turn a flank, or of an attack on the great battery, the cavalry of each side, if they do their duty, are pretty certain to come into conflict. Most of all, when one side has sustained a reverse, and the cavalry of the victorious army advance to complete the defeat and to take up the pursuit, will it be the duty of that of the other to attack them at all hazards. A grand example of this was shown by the Austrian Cuirass Brigade, under Beales, at the close of the battle of Sadowa.

GENERAL REMARKS.

Divisional Cavalry and the Cavalry Division.

I FEAR I have been remiss in not drawing more attention to the distinction between the “cavalry of division,” or the “divisional cavalry,” and “the cavalry division.”

In order, then, to prevent misunderstandings, I will venture to remind my readers that the divisional cavalry is that which is separately attached to divisions (if possible one regiment to each), and is under the orders of the division generals; while the cavalry division is a large body of cavalry, composed of several brigades. It has a commander of its own, and is an independent body, both strategically and tactically. On the march the divisional cavalry covers the head of its division, and maintains the communications with the columns to the right and left, when, as is almost always the case, the force is marching by several more or less parallel roads. It is also used to connect all detached bodies, both in front and rear, with the main columns.

On the field of battle its station will be generally in the neighbourhood of its own division, in the most sheltered spot that can be found in proximity to the front. The advantages enjoyed by the divisional cavalry of the defensive side in this respect have already been pointed out. It is to the cavalry of division that the most frequent chances of action fall.

Formerly it was a frequent, if not universal, custom to withdraw the cavalry from their divisions on the occasion of a great battle, and to unite them in masses. The idea is obviously bad, and is now generally exploded.

The cavalry divisions cover the advance of the army, preceding the heads of the columns by at least one day's march. When the army is making a general flank march, they move on and protect the exposed flank. Their duty is to cover and conceal as much as possible the movements of the corps they precede, while disclosing those of the enemy. They collect information of every description, and gather supplies for the use of the army in the rear. In battle they protect and watch the flanks—give intelligence

of, and endeavour to frustrate, turning movements on the part of the enemy, or cover those undertakings on their own side. They are also used in great enterprises against an enemy's rear or line of communications.

The cavalry divisions commence the pursuit or cover the retreat. It is of the last importance that they should not be frittered away in trifling skirmishes or partial counter-strokes.

The practice of drawing large numbers of men from the ranks for orderly and escort duties is much to be deprecated, and is condemned by all writers on cavalry.* In most countries there is abundant useful work for every sabre and lance in an army, and as the cavalry are subject to a more rapid loss of strength in the field than any other arm, and its work, if properly performed, is necessarily arduous, every effort should be made to keep its numbers up to the highest point. No general ought to complain of cavalry work being inefficiently performed unless this is attended to.

Independence of Cavalry Generals and Leaders.

The question of the amount of independence to be granted to cavalry commanders has been much disputed upon; but without troubling my readers with a string of quotations, I will simply remark that it seems to be allowed that, when an army is engaged on the defensive, the cavalry should not be permitted to manœuvre or make attacks without the order or sanction of the commanding general—the reason being, that it may often be of the highest importance to have a considerable body of horse at hand at the close of the day, for a last effort or to cover the retreat.

* In the Prussian and Austrian service such duties are performed by the *reserve squadrons*, not a single man being drawn from the effective strength for these purposes.

To the cavalry of the offensive side a greater degree of latitude is permitted, but it is not to be supposed that a cavalry general would ever lead his force to the attack without previously acquainting his chief with his purpose. Nevertheless, on account of the transient nature of the opportunities that offer for the use of cavalry, he may often be justified in attacking without waiting for permission to be actually accorded.

The above applies to cavalry in masses, as the cavalry divisions. The smaller bodies of divisional cavalry on both sides would be in general permitted to charge whenever the leaders may find a chance. If the action of cavalry in future battle-fields becomes as important as seems probable, or at least possible, the generals of divisions will, no doubt, so arrange their lines, when acting on the defensive, as to give the squadrons belonging to their command the advantage of being able to pass rapidly through the infantry position, with as wide a front as possible.

Under no circumstances has a cavalry general any control over the cavalry attached to divisions. Towards them he can only stand in the position of an inspecting officer.

The independence of the different cavalry leaders on the march is in an inverse ratio to that allowed them in action. For when the army is in movement the divisional cavalry is tied to its division, and is under the immediate orders of the divisional commander, while the cavalry divisions are independent bodies—on the same footing, in fact, as *corps d'armée*—and their leaders receive instructions only from the commander-in-chief himself.

The grand principle, dictated by reason, on which all officers commanding mixed bodies of troops are supposed to act, is to allow the leaders of the different arms to work their commands in their own way. For instance, leaders

of cavalry would have the wishes of the commanding general, or the object of a particular movement, explained to them, with the general rôle to be adopted by the force under their command; the details of execution being invariably left to themselves.

It is supposed that an officer in command of a regiment or brigade will always know best how to handle his own arm so as to make it act with the greatest advantage to the general good; but it must be borne in mind that, as it is the infantry which is the main-stay of the army, the general good means in almost every case what is good for the infantry.

"In armies infantry undoubtedly takes the lead, and to its action that of other arms must be subordinated. An intimate knowledge of infantry tactics consequently becomes most essential for officers of the auxiliary arms, cavalry, artillery, and engineers, it being their duty to aid and facilitate the action of the infantry; and they must seek, not what is most advantageous and best viewed from a cavalry, artillery, or engineer point of view, but what is best viewed from an infantry point of view."

Page 145,
"Précis
of Modern
Tactics."
Major
Home,
R.E.

When special orders are issued to an auxiliary arm, they should be clear and minutely precise. This is most important in the case of cavalry, since once launched there is no possibility of checking them in their career until their course has been completely run. Let us never forget that it was a vaguely worded order, misunderstood by the leader of the cavalry division, that led to the charge of the Light Brigade at Balaclava.

Cavalry leaders, from the highest to the lowest, should not be too severely dealt with for failures in their attempts, provided only that such failures do not arise from an excess of caution or from irresolute counsels. It is far better to be overbold than ever so little too cautious. The

first is easily excusable in a cavalry officer ; in fact, it is impossible to draw the line, since what may seem utter madness before the charge, may appear very much as a matter of course after it has been brought to a successful termination. Opportunities being so transient, what is wanted is a man quick to seize the flying moment, without making too close a calculation of the odds in his favour.

Place of Cavalry during an Action.

The disposition of the cavalry divisions at the commencement of an action is a point to be carefully studied, more especially, of course, in considering the matter from a defensive point of view. For, while being careful to place them where they shall not suffer loss while remaining inactive, it is absolutely necessary that they shall be able to move freely in any direction, and without being exposed to too heavy a fire at the instant of quitting their shelter. Colonel Bonie, before quoted, points out the faulty disposition of the French cavalry at Gravelotte, the mass of which, it seems, was kept hidden away in ravines somewhere behind the centre of the line of battle, and might as well have been non-existent. Whereas, had it been posted in rear of the right flank, where the ground was favourable for its action, it would have had a good opportunity of charging the Prussian guard when beaten back from St. Privat—a charge which, it appears, might have had a *decisive* effect on the battle. They would also have been in a position to defeat the turning movement by which the position was finally won, that is, supposing the Prussians had ever recovered sufficiently from the first charge to be able to attempt it.

In speaking of the action of cavalry on the field of battle in attacking infantry and artillery, it was necessary

to presuppose that tolerably sheltered positions could be found for it within reasonable proximity to the general line. If no such positions are discoverable, of course the sphere of action of cavalry will on such occasions be a limited one, but I think any officer who has studied ground with an eye to military requirements will allow that, in most countries, there is a fair chance of finding shelter for a limited number of squadrons within such distance of a defensive line as will allow of their being brought forward in good time to the attack. The great majority of main positions are found on ground which is of greater elevation than that which is in front or in rear of it, and this circumstance alone favours concealment, which is often, though not invariably, equivalent to security. This should always be taken into consideration when considering the effect of modern artillery, the range and power of which has made it a perfect bugbear in the eyes of some tacticians, who overlook the fact that, except in very special cases, artillery can only fire at what it sees, and that the amount of invisible ground at a distance of 3000 yards will bear a large proportion to the visible, in almost any country. It is to be noted also that artillery practice at long ranges is likely to be a very different thing, in the heat of action, to that shown when firing at exposed targets without any disturbing influence.

The proper place for the mass of the cavalry is, no doubt, in rear of the flanks, which they watch and guard. "No army that is able to manœuvre, and the cavalry of which is properly posted, and does its duty, should ever, under any circumstances whatsoever, be surprised by a flank attack." *

*"Précis
of Modern
Tactics."
Major
Home,
R.E.*

When the country about only one flank is suitable for its operation, the major part of it will of course be posted there, only a small force being left to watch the other.

Otherwise, cavalry should be strongest on that flank which the enemy are most likely to attempt to turn.

It would appear to be useless, if not dangerous, to mass cavalry in rear of the centre with the idea of its being more in hand for covering the retreat if the army is beaten. Battles are not lost in a moment, and its swiftness of motion would, in the great majority of cases, allow of the cavalry being brought up to the general line of retreat in ample time.

When the ground behind the defensive line is such that cavalry may move freely from point to point without being seen by the enemy, as, for instance, the reverse slope of a bare ridge, the crest of which forms the position, it greatly simplifies matters from a cavalry point of view. In such cases brigades of cavalry might well be retained opposite the probable situations of great batteries, as suggested by Colonel Hamley.* (*Vide* quotation, p. 69.)

It is not necessary, though doubtless preferable, that they should be in front of the line.

If both the flanks rest on ground of such a nature that cavalry cannot be employed in either direction, it by no means follows that nothing is to be got out of this arm during the day. Wherever the ground in front of the position is good, cavalry may be placed in the neighbourhood, in case an opportunity should arise for its employment. More especially, wherever the line is weakest, wherever the enemy begins to make an impression, there should cavalry be held in readiness to dash on the successful foe when disordered by his own efforts.

* The cavalry scouts ought to be able, or at least they should endeavour, by watching the march of the enemy's columns as they approach the battlefield, by noting the direction taken, their composition, the behaviour of the advanced guard, etc., to furnish the commanding general with sufficient data to enable him to arrive at a tolerably correct conclusion in this matter.

The Ground.

As every cavalry attack is, or ought to be, of the nature of a *surprise*, suddenness of appearance and the power of striking the enemy as soon as possible after being first seen is absolutely necessary for the full development of its power. Hence it appears that the sort of country now most suited to the action of the arm is a different one from that formerly considered as most suitable. Those wide, open plains once extolled as a "splendid theatre for cavalry" are now almost the worst ground for fighting that can fall to its lot, because on them it will be exposed to the full effect of rifled guns and breech-loaders.

An undulating country, on the contrary, having low hills with rounded summits and gentle slopes, would be very favourable; for the hillocks and ridges would afford sheltered spots, where the cavalry might remain unharmed by the enemy's projectiles till the time came to burst forth upon the foe. In such a country, too, they might with safety manœuvre in the lower ground behind the swells, out of the enemy's view, and if accidentally brought under fire when not intending to attack, they would have little difficulty in moving into a position of security.

It is wonderful what slight accidents of ground will sometimes afford concealment. Any one who has witnessed the manœuvres of a considerable force in any country not a dead level and perfectly open, cannot fail to have been struck by the way in which bodies of troops appear and disappear where there is apparently little or nothing to conceal them. Undulations in the ground, whose rise or fall is so gentle as to be hardly perceptible when one is on the spot, will often entirely conceal cavalry from sight at a few hundred yards' distance; and when the country consists of a wave-like succession of such undulations, it is

generally very favourable for cavalry action, since their presence may be unsuspected until the advancing enemy has arrived within three or four hundred yards, than which no situation can be more favourable for a direct attack. There was an example of something of this kind at Floing (Battle of Sedan).

In like manner, small plains studded with clumps of trees, woods, and villages—anything, in fact, which, by affording concealment, permits the cavalry to get nearer to the enemy, and thus shortens the distance which has to be traversed under fire—are highly advantageous, provided always that the cultivated land is not too strongly inclosed. Strongly fenced, as also very rugged ground, is to be avoided; but it seems as if cavalry ought to make up their minds to act commonly over much worse country than has hitherto been considered practicable. Single rank and, still more, extended order will permit of manœuvring and attacks being made over ground which formerly cavalry did not attempt, and consequently their sphere of action will be largely increased.

At Reichshöfen (Wörth), and elsewhere, we hear of masses of cavalry, attacking in double ranks and in close order, being totally disordered (and therefore defeated) by suddenly encountering unexpected obstacles. These attacks would not have succeeded even against infantry armed with the old musket. On examination, the obstacles often appear to have been of a nature which would hardly have impeded extended lines, in which each individual horseman has the power of avoiding such things as tree-stumps and empty waggons, and in which, if a few men are stopped, the whole line is not thereby disordered or checked in its advance.

Marshy ground and wide ditches, canals, or natural streams, which are not visible until close at hand, are

fatal to cavalry, and many disasters have occurred from their being unexpectedly met with in the headlong rush of a charge. All ground over which the cavalry may have to move, much less to attack, should be examined by their scouts, of whom more hereafter.

Pace.

We have already seen, when considering the manner in which attacks of cavalry will have in future to be conducted, that the gallop *must* be sounded when the effective range of musketry is reached; that is to say, at about 1200 yards from the enemy's line. No doubt, in countries such as I have alluded to as favourable for the action of cavalry, a limited number of squadrons would almost always be able to remain sheltered within a less distance of the hostile infantry, particularly when the latter are advancing, which obviates the necessity of movement on the part of the cavalry until the former arrive within convenient distance. But it is obvious that this would become more difficult as the size of the bodies increased; and, besides, it will not unfrequently happen that necessity will compel an advance over open ground, during which the horsemen will be exposed to fire up to the furthest ranges of the weapons used against them. It must also be remembered that the affair is by no means over when the enemy's first or fighting line has been reached, for there will always be at least one line of supports, besides the second line of battalions in rear of all. Consequently, cavalry must make up their minds to have to traverse at a gallop distances of 2000 yards occasionally, and seldom less than 1200, even when acting against cavalry; and this has to be done whether the horses get blown or not, under a penalty of annihilation.

"Cavalry
Field
Duty,"
by Major-
General
Von
Mirus.
Trans-
lated
by Captain
F. Russell.
(Prussian
cavalry
text-
book.)

"Indeed, if cavalry is not to be completely destroyed, they must boldly advance and quickly dash across the ground in their front; then, by the very ardour and power of their onslaught, they will beat down and overthrow all that are before them."

Such charges, though not exactly in accordance with our own regulations, have always been deemed practicable by great leaders. A hundred years ago, when cavalry formed a larger and, so far as actual fighting goes, a more important part of armies than it does at present, we find Marshal Saxe laying down the law as follows:—

Saxe,
"Reveries
on the Art
of War."

"It is above all things necessary that they (the cavalry) should practise galloping large distances. A squadron that cannot charge 2000 paces at full speed is unfit for service. It is the fundamental point, for after they have once been brought to that state of perfection they will be capable of anything; and every other part of their duty will appear easy to them."

As I am not aware that our horses are in any way inferior to the stamp of remount with which Marshal Saxe was acquainted, I do not see that the supposed incapacity of our cavalry to do the same can be fairly attributed to a want of strength or endurance on the part of their animals; and surely, if a swift advance was deemed indispensable in the days of Saxe and Frederick the Great, it is doubly necessary now.

The action of cavalry to be decisive must be directed against infantry [and artillery. All the great charges that one reads of seem to have been made at speed and over a considerable distance. Of such, the cavalry charges which took place at the battles of Hohenfriedburg, Rosbach, Zomdorf, Dresden, La Rothière, Borodino, Eylau, Hanau, Salamanca, and several others, afford examples. I only give names without details, as there are

many who say, and with justice, that the feats of cavalry in those days are no guarantee of their performing the like now, the conditions being altered. I merely wish to prove that there is really nothing extraordinary in expecting cavalry to gallop a mile or so without utterly exhausting their horses, since the feat has been performed a number of times.

The Austrian cavalry regulations direct the gallop to be sounded at 800 to 1000 paces from the enemy. They also order that cavalry horses are to be so trained and managed as to enable them to gallop 3000 to 4000 paces in cases of necessity.

In the latest edition of our own regulations the advance is directed to be made at a brisk trot till within 500 or 600 yards of the enemy, and the charge is to be sounded at 50 yards.

So short a distance appears to be insisted on from a fear that, if a longer gallop is allowed, the horses would become exhausted, and unable to bear their riders satisfactorily in the fight, or be sufficiently fresh to enable the cavalry to make any subsequent effort that may be necessary.

And this is what astonishes civilian riders. In following hounds we know that the sorriest hack-hunter that ever came out of a dealer's yard is supposed to be capable of lasting, at all events, a mile or two, and of clearing any ordinary fence that may come in his way, be the ground never so heavy, and this too at a pace that, if there is anything like a scent, is about as fast as he can lay legs to the ground. Why, then, should cavalry horses become blown and exhausted after no greater exertion than is entailed by a gallop of a few hundred yards, the first part of which is decidedly slow?

We have not far to look for an answer. The reason why the horses are *done*, not perhaps after a gallop of a

few hundred yards, but certainly before they have covered a mile at speed, is *principally* on account of the enormous and crushing weight that is put on their backs, and which is such that, were our men mounted on 200 guinea weight-carrying hunters, they could hardly do now what might otherwise be fairly expected of them, and what it is absolutely necessary that they shall do, if our cavalry is to be any longer considered as a fighting arm.

This has been frequently pointed out, but up to the present time no real effort seems to have been made for the amelioration of our horse regiments in this respect. It is no use consoling ourselves with the idea that the German cavalry ride just as heavy as our own, and that what is good enough for the great military nation of Europe, etc., etc. Surely, with our tiny but enormously expensive force of cavalry, we cannot afford to be simply no worse than our neighbours. We ought to try and make ourselves a good deal better. No one can question the fact that dead weight is a disadvantage, and I propose to consider, in the chapter on "Organization," how an improvement in this respect may be effected.

It being considered, then, a proved, that cavalry to be really effective in action must be prepared to gallop distances of 1200 yards and upwards, and it being also conceded that cavalry horses, whether by reducing the weight they have to carry, or by other means, are capable of getting that distance without distress, we will proceed to consider the actual pace at which the attack is to be made.

The first advance will of course be at a trot, which may be maintained, if the advance is a very long one, until the enemy's infantry fire begins to be felt; but in general the gallop would be sounded as soon as the troops are clear of shelter, be it hill, wood, or whatever it is, and have

assumed the formation for the attack. It is needless to say that this would be completed with the utmost rapidity consistent with order. And here we ought to notice the most important difference between the attack on cavalry alone, or cavalry and a weak force of artillery, and the attack general, where a hailstorm of missiles has to be passed through. In the former case, the gallop need not be sounded till within 300 yards of the enemy. This is done in order to save the strength of the horses for the *mêlée* which follows; but the danger is lest the enemy should himself sound the gallop and fall on before our line has attained sufficient impetus to insure success. Lines of cavalry near one another very rapidly, and if they are both in equally good order, that which is going the fastest at the moment of contact will generally overthrow the other.

The gallop should commence at the ordinary parade rate, but, as the regulations wisely put it, there should be a "progressive increase" until the time arrives for sounding the charge, at which instant every horse should be nearly at his full stretch. This point is laid down at about 50 yards from the enemy's line—an absurd distance, when we come to consider that this space is traversed in three or four seconds. The trumpeter would barely have time to sound before the lines were in contact; and as so much depends upon the last rush being made at the highest possible rate of speed, it would, I think, be advisable to increase the distance to between 100 and 150 yards—a few yards more or less matters little. This final rush, the actual "charge," should always be made at the greatest possible speed. Never mind about the "slowest horse." In so short a distance there is no fear of one animal outstripping another more than half a length or so, and not that, if the rank is well "locked up." The greatest attention should

be paid to the last point; no flying out whatever to be permitted; and if the flank squadrons incline slightly inwards, so as to close the intervals immediately before the shock, so much the better.

The endeavour should be to overthrow and burst through the enemy at once. If this can be done, there will be no *mêlée*, and the success will be instantaneous and far more decisive; but to accomplish so much it is absolutely necessary that the files should be well closed up. This is why Seidlitz liked to see his line jammed boot to boot in a charge; and the first cavalry which arrives at equal perfection in the attack may, perhaps, hope to emulate the triumphs of the squadrons he so nobly led. The high importance of this point seems to have been almost lost sight of. In our own service, and also, I believe, in some other European cavalries, it is considered quite natural, if not unavoidable, for the ranks to be loosened and extended during a charge. The consequence is that, when two lines meet in actual conflict, they pass into one another, the files being "accepted," as Mr. Kinglake calls it. The shock is slight and partial, and the attack is instantly resolved into a *mêlée*, which wastes time and men, and frequently leads to the employment of other troops to extricate those first engaged.

But if one force, retaining the mode of attack now common, is encountered by a line charging compact and close in the fashion I advocate, my readers will, I think, allow that the probability of victory will lie towards the latter, whether they are in one rank or two. It is, however, infinitely easier to attain the necessary combination of order and speed in the single-rank formation.

To facilitate the perfect closing up of the rank, the swords should not be brought down to the engage. I am sure it tends to alarm timid horses, and induces them

to try and shy away from their neighbours—the very thing which is to be so carefully avoided. Besides, if the swords are razor-edged, as they should always be, a slight jostling might cause wounds to be inflicted other than those legitimately received from the enemy. What every man wants in a charge is not sword-play—that comes afterwards—but to be able to deliver one downright blow* at the enemy immediately opposed to him, at the very instant the lines come into collision; and for this purpose it is best for his sword hand to be raised to the level of his head.

Every charge should be accompanied by a ringing cheer, commenced by the leader of the charge himself. (Sir Garnet Wolseley speaks very forcibly on this point.) It is childish to forbid on the parade-ground what is acknowledged to be good before the enemy. There is not the least fear of any amount of cheering making the men wild, if charges are only practised with sufficient diligence, instead of being indulged in about once a month, as is too often the case. Far better is it that the men should display unsteadiness at peaceful field days, where such faults do not entail serious consequences, and can be easily corrected, than in actual battle in front of a formidable enemy.

In attacks in extended order, the pace would be gradually increased, until a speed of from eighteen to twenty miles an hour is attained; but the “charge” is not to be sounded nor any desperate rush made, such being, in fact, uncalled for. *All extended lines, however, must be prepared to close their files at the bidding of their leaders—to rally on them, in fact—and a charge may then be executed if necessary.* The files will always have to be closed rapidly, for a retreat through the general line, after an attack on advancing infantry. Extended lines will not, however,

* Certainly not a thrust.

close their files when driven back by the enemy's cavalry ; on the contrary, they should rather seek safety in dispersion, rallying to the flanks or in rear of the closed bodies supporting them, as they may happen to be guided by their officers. Both dispersion and rallying should be done at speed.

All cavalry regiments should endeavour to manœuvre quickly. I cannot help thinking, and others have made the same remark, that, with regard to our cavalry, we are very prone to sacrifice rapidity to what we call steadiness. Now, it is, in fact, as easy to be steady when working quickly as when working slowly. Even if it was not, rapidity is of infinitely greater importance than great exactitude. Happily, however, there is no reason why rapidity and exactitude should not be combined. The "steadiness" that is born of slowness cannot be too much condemned ; but rapidity and steadiness together are worthy of high praise. Some of our crack cavalry regiments used to be beautiful examples of quick working combined with precision.*

Nolan, in his book, justly condemns "hurrying ;" but quickness and hurrying are very different things. Which is the likeliest to hurry when manœuvring under fire—a slow, lumbering regiment, however steady on parade, or a smart, quick-moving one ? When shells begin to fly about, the slow and steady corps is certain to try and get its movements finished somewhat quicker than its ordinary dignified style allows, and unsteadiness and confusion is thereby likely to ensue ; but the smart regiment will work at its usual pace and with its usual correctness, without hurrying, because both officers and men know well that they are doing all they can.

* Rapidity of movement is now insisted on in the Cavalry Regulations, para. 21, sec. 9, part iii.

There are certain paces laid down in the regulations, and until they are altered they must be adhered to. A little error, however, on the quick side ought not to be severely dealt with; but anything on the other is, and ought to be considered as, a serious crime. All cavalry officers should remember that, however much the arm has been decried of late, it still retains the great advantage of being by far the fastest moving of the three;* and this advantage it must always hold, unless it be wilfully abandoned.

Rallying and Pursuing.

After all successful charges there arises a difficulty which, though recognized, seems hardly to be regarded with sufficient attention. It is that of staying the troops at the proper moment in their career of victory. The more complete the first success, the greater the ardour and gallantry of the men—on which all success must depend, and which it is so necessary to keep up to the highest pitch—so much the greater will be this difficulty. When the charge is sounded every man should feel like a devil let loose from hell,† with just a momentary idea of closing to the centre of his squadron, until the shock takes place. This feeling, admirable as it is, should not last long, for while it does the individual is hardly capable of hearing, much less of obeying, orders. However perfect the discipline, it is impossible to stop such men until their

* I am aware that horse artillery will generally beat cavalry (as at present organized) when advancing in line at a gallop over good ground.

† On the 25th May, 1809, the Prussian major, Schill, with 600 hussars, attacked 1800 French infantry, who were posted with two guns in broken ground. Their commander, General Michaud, wrote as follows to the Minister of War, Eblé:—"Ces hussards ne se battent pas comme des soldats ordinaires, mais comme des enragés: ayant rompu et sabré mes quarres, ils firent les restes prisonniers. Venez à mon secours," etc.

own fury, or the strength of their horses, is exhausted. Something may be done by cautioning them beforehand, but such cautions are too apt to be unheeded or forgotten in the mad excitement of the moment. It only remains, then, to accept the facts, and to acknowledge that the very spirit which makes horsemen most terrible in the charge tends also to render them most unmanageable, and therefore weak, after the enemy have been defeated; and when this is the case, their safety depends alone on the presence and skilful leading of the supporting lines.

It would appear well on these occasions not to attempt to halt the men too soon. It is often easy to lead men *on*,* and so in some sort control them, when it would be impossible to stop or turn them. In cavalry conflicts, when both sides are in several lines, if the first line immediately overthrows that of the enemy, it should at once dash on against the second; and if too disordered actually to defeat that, yet the impetuous though irregular onset would probably so unsteady it as to insure its certain dispersion by the supports. And so on with the other lines, provided only we have more of them than the enemy, and that they are sufficiently close up to give their assistance with certainty. The single-rank system would insure the necessary superiority in this respect.

The same squadrons that make a successful attack must usually be allowed to pursue, at all events, for a short distance. This is at variance with what is generally laid down, which is that the pursuit should be conducted by fresh troops. This is true, I think, only of occasions when the pursuit is intended to be pushed to the utmost, as after a great blow has been inflicted on the enemy. Even in this case the squadrons that have actually attacked

* In the new regulations the trot is ordered to be sounded after the charge.

will generally pursue for some distance, after which the first fresh troops that come up will continue it. It is, I think, impossible in most cases to prevent the victorious troopers following up the enemy, nor can I see much harm in it. They are always the nearest to the troops they have defeated, if not actually mixed up with them. It is important, however, that the support should be near at hand, and that it should retain its close formation. It should never be allowed to disperse in pursuit until the first line is actually rallying. The rally should be well to the front, the officers calling to the men to close on them while still galloping. The practice of closing from extended order would render this easy. When the first line is seen to be rallying, the supports may dash on and take up the pursuit; the remaining lines coming up would protect the first as it reforms, and would also support the pursuers.

There is hardly an instance to be found of a great charge in which success was not marred, if not altogether blotted out, by the victorious squadrons going on, and thereby exposing themselves to a counter-attack of the enemy's cavalry, after the primary object of the attack had been already attained.

Now, the uncontrollability of the men ceases altogether with the first or actually attacking line, and in these instances a large share of the blame attaches itself either to the leader of the charge for not knowing when enough had been done, and at all events halting his supports if the first line was found to be out of hand, or to the leaders of supporting lines for joining in the attack without orders. Examples of both may be found in history.

It has been said, and with truth, that caution is a misplaced quality in a cavalry leader; yet, on the other hand, it is absolute weakness to commence a charge with-

out having proposed to one's self a definite object. When that object has been attained, there is not, in the majority of cases, anything to be gained, but the reverse, by not at once sounding the rally and leading back the successful squadrons.

I do not mean to say that if, when the original purpose is accomplished, another object worthy of further exertions is seen before one, that it is not to be striven for. This would be misplaced caution. What I do mean is, that when nothing definite presents itself, a leader has no right to risk losing the advantages already gained, to say nothing of the lives of his men, by a wild and aimless advance amid unknown dangers. When a mass of cavalry goes blundering on against the enemy, without object and without knowing what is before them, the greater their courage the greater is likely to be their discomfiture.

It is this sort of attack that was so frequently exhibited by the French cavalry in the late war. They got themselves massacred in heaps, but never, so far as I know, produced anything but the most transient effect on the enemy.

Distance to be Preserved between Lines when Attacking.

I have as yet said little or nothing about the distance to be preserved between the lines when attacking, preferring to deal with the question as a whole, rather than to take it piecemeal when considering the various methods of attack.

The mere fact of the increase of the number of lines under the single-rank system would almost of itself necessitate their being brought closer together than is now often the case, but they must in all cases be so disposed as not to interfere with one another's power of action.

Single-rank lines will also require somewhat speedier support than those in double rank, since the former are liable to be outnumbered in a *mêlée* if the enemy is in double rank. This is not of the smallest consequence if the support be pretty well up, in which case it will be observed that precisely the same number of men will take part in the fight as if the formation was in two ranks; the difference being that, under the new system, they are taken away from the cumbrous and comparatively useless rear rank, and thrown in (if necessary) on the enemy's flank, where every sabre can be used with the greatest possible effect.

Bearing the above in mind, and also allowing that, *cæteris paribus*, small bodies require quicker support than large ones, I would lay down the rule that the normal distance between regimental lines of cavalry in single rank should be the same as their own front, plus an interval.* Thus, the distance between the front and rear lines of a single squadron would be the breadth of the squadron, plus one squadron interval. This would immensely facilitate the working of cavalry under this system, and would also allow of the immediate formation of an "entire line" to a flank, when such might be required under exceptional circumstances—as, for instance, with the intention of deceiving the enemy by a large show of force.

The above would be the fixed distance between regimental lines when manœuvring, and generally when in position. It would consequently be the distance between lines at the commencement of an attack. But the leading line increases the pace gradually from the moment of breaking into a gallop, and (if in close order) would finally charge;

* An interval should be equal to one-fourth of the front of the squadron. I can see no advantage in rigidly fixing the width of the intervals. Weak units do not require such large intervals as strong ones.

while the second line would simply gallop steadily on. The front of a regiment of four squadrons of 40 files each would be 190 yards. $190 \text{ yards} + 1 \text{ interval of } 10 \text{ yards} = 200 \text{ yards}$, which would be the original distance between the advancing lines. I calculate that during an advance of only 700 yards the distance would be increased about one-half; that is to say, there would then be 300 yards between the lines. This appears to me to be quite enough between lines of this strength; and I should therefore be inclined to lay it down as a general rule that, in the case of a single regiment, the second line leaders should not allow the first line to get farther away from them than about 300 yards, and that in any case the proper original distance is not to be allowed to be increased more than one-half. Of course, there are all sorts of things that might interfere to prevent this rule being strictly carried out. Supporting lines of any description are well known to be difficult to lead; but the great point, after all, is always to have a good interval until wanted, and then to be always on the spot.

In the case of large bodies of cavalry in several lines, the second general line would, in accordance with the general principles for the working of cavalry in masses, preserve a distance of about 300 yards from the leading body during the preliminary advance or preparatory manœuvres. This distance would be taken from the rear-most portions or regimental second lines of the first general line. The position of the third general line or reserve would be regulated in the same manner.

Extended lines would follow much the same rules as closed lines; but the leading extended squadron or squadrons will not, and, in fact, should not be permitted to, get away too much from its extended support. They would preserve a distance apart about equal to two-thirds of

their front.* One line of a squadron of 40 files extended at intervals of one horse's length would cover $40 + \frac{(40-1) 8}{3}$ yards = $40 + \frac{39 \times 8}{3} = 144$ yards—say 150 yards, two thirds of which would be 100 yards, which may be taken as the least allowable distance. If two squadrons were extended together, the distance between their first and second lines would be from 180 to 200 yards. The closed squadrons following in rear would be at about the same distance; and if in two lines, these would be at their proper distance apart. All this seems puzzling on paper, but would, I think, be simple enough in practice, particularly as great exactitude would neither be required nor expected.

The diagrams on previous pages, which are all drawn to scale, will serve to illustrate and explain what I have said on this subject.

Combination of Horse Artillery with Cavalry.

The combination of horse artillery with cavalry, though not essential to the success of the latter, is always of great advantage. Horse artillery is, and always has been, the best friend of the cavalry. Recent improvements have lengthened the range of the guns, and increased its mobility generally; it is consequently in a position to render cavalry the most efficient assistance.

It has often been said that artillery should prepare the way for the cavalry, and that the latter should never attack unless such a process of preparation has been gone through. Even in quite recent writers I find the same laid down, and cavalry leaders and others in the late war are blamed by these critics for hurling on their squadrons

* This is nearly the same thing as double the original distance when in close order.

without waiting for artillery to make its impression on the enemy.

To those who truly appreciate the genius of cavalry, it will be obvious that such a theory is, in modern days, fallacious. The essence of a cavalry attack lies in the *surprise*, and artillery *cannot* render them the same services in the way of preparing the attack as they can, and invariably do, for infantry.

On the other hand, it is even more necessary for cavalry than for infantry that the enemy should be pounded and shaken as much as possible before they are let loose upon him. Cavalry does not attack unshaken infantry except in very rare instances; but the preparation is not special as in the case of infantry. Opportunities occur, which are watched for and taken advantage of. If the troops in front are not considered sufficiently shaken to allow of a cavalry charge, then the opportunity has not yet arrived. It is only for the moments immediately preceding, and during the advance, that any direct assistance can be rendered by the fire of guns attached to the cavalry itself.

In attacking infantry the business of horse artillery would appear to be the protection of the cavalry in their retreat. To effect this, it takes up a position, on the advance of the horsemen, from which it can fire on the enemy's second line and reserves without being itself exposed to infantry fire; especially would it endeavour to silence any mitrailleurs that might be in a position to play on the attacking squadrons. It would open furiously upon any hostile cavalry that might make their appearance, and also pound any masses into which the enemy's infantry might throw themselves in consequence of the cavalry advance.

In great enterprises upon an enemy's flanks or rear, a large force of horse artillery is indispensable. Its mobility

also renders it a powerful auxiliary in defeating a turning movement of the enemy, who should himself be outflanked and enfiladed.

In cavalry conflicts it was formerly the custom for artillery to gallop to the front and open fire, first on the enemy's artillery, and afterwards on the hostile cavalry as they approached. Now, however, it will not generally be necessary for the guns to advance any great distance. They would probably take up the nearest eligible position, and would fire exclusively on the troops. Particularly ought horse artillery to look after the second line, and endeavour to knock about any fresh reserves the enemy might be able to bring up. The great range of modern artillery would enable them to do this with good effect, and they would seldom need to change a position once taken up. If, however, a successful attack is followed very far, they would have to limber up and again gallop to the front.

If the enemy gain the advantage, it would depend upon the position occupied by the horse artillery whether they retired at once or not. If not too close to the actual scene of contest, they might still be able to pour as heavy a fire as possible on the enemy's supports for a few moments, when perhaps the reserves of cavalry coming up would restore the fight. If not, they will have to go to the rear at speed; but when a tolerably safe position is reached, they again come into action, and endeavour to check the pursuing squadrons. It is, however, chiefly in pursuits and retreats that the action of horse artillery combined with cavalry is most valuable, and I shall have occasion to speak of it further on.

Horse artillery working with cavalry seldom or never require escort. Their increased range will allow of their never going beyond a safe distance to the front—say 200 or

300 yards. But if assistance be required, it should be rendered without fail.

Nolan, "Cavalry: Its History and Tactics." "To repel a sudden attack, the officer commanding the troop or squadron nearest to them should at once fly to the rescue without waiting for orders; and this principle of mutual support should be encouraged under all circumstances between cavalry and horse artillery."

It is an old maxim that cavalry and horse artillery should never be in motion at the same time. When the cavalry is manœuvring, the guns should be in position to cover them; when the artillery is in movement, a portion, at least, of the cavalry should be halted and ready to afford protection.

As when pertaining to infantry, the artillery attached to cavalry is tactically independent; that is to say, the officer commanding that arm, being informed of the cavalry leader's intentions and wishes, is left free as to the movements he is to undertake for their furtherance.

I cannot help thinking that it would be very advisable to attach mitrailleurs to H.A. batteries. The large-sized Gatling is not very different in weight from the present R.H.A. gun. I think if two of these, or even one, were to form an integral part of every horse battery, answering in some sort to the howitzers of smooth-bore days, it would greatly increase the general efficiency of the arm, and supply a want which is already severely felt—I mean the power of delivering a very deadly fire at short ranges.

Whether we consider the action of horse artillery in assisting to inflict a great blow on the enemy, or, on a smaller scale, covering the retreat of squadrons after a charge, or still more, when pouring a destructive fire into columns of retreating infantry, or, again, by its rapid motion and deadly discharges checking a hot pursuit, it is, I think, evident that the fire of these pieces would be of the greatest value.

As the largest-sized Gatling really has a considerable superiority of range over ordinary musketry, the employment of mitrailleurs need not tempt horse artillery to go within the forbidden limits of infantry fire, while the machine gun, skilfully handled, ought to tear to pieces any formed bodies of troops exposed to its discharges at a less range than 1500 or 1600 yards.

It is precisely this power which is so much needed by cavalry, partly to complete the effects of their charge, and also to impart to it, on occasion, some share of the defensive element.

CHAPTER II.

EMPLOYMENT OF FIRE-ARMS. MINOR TACTICS.

IN the preceding chapter our attention has been entirely confined to the action of cavalry with *l'arme blanche*, the sabre and lance, which is, in fact, its proper, and, except in certain cases, its only effective method of fighting.

As the rifle is the weapon of the foot soldier, who, although provided with a side-arm, seldom finds himself in a position to make use of it, so also is the sabre or lance the weapon of the mounted man; the fire-arm with which he is always furnished being but of an auxiliary nature, and therefore only coming into play under peculiar conditions.

Herein lies the difference between the two arms. The qualities and mental condition necessary to make a good trooper are totally distinct from those required by the infantry soldier, and although excellence in either is in a great measure the result of training, yet it is impossible to make them interchangeable. The same man cannot, by any process of instruction, be made to assume the characteristics at one moment of an infantry, at another of a cavalry, soldier. It is natural, and indeed necessary, for a man to have confidence in the weapon he chiefly uses. If this is a fire-arm, he will rely on it, and despise the sabre and the wielder thereof. This is a right and proper idea for an

infantry soldier; but once let the minds of cavalry men get imbued with the same notion, and they will never be brought again to the charge, or, indeed, to face infantry at all. They would, in fact, be useless.

The essence of cavalry is a good *morale*; that is to say, every man, officer and trooper alike, should have a firm belief in the superiority of his arm over any other. He should deem himself and his comrades invincible. This feeling cannot exist if cavalry are encouraged, or even permitted, to be continually having recourse to their fire-arms. Those tacticians who wish to turn our cavalry into mounted riflemen can have no conception of the difference between the genius of the two arms. It is a most dangerous idea, and one that if carried out would end in our having a body of very indifferent riflemen, who, while costing the State no less than at present, would be totally useless for real cavalry fighting.

Besides, the experiment has been tried—by Napoleon the Great, among others—and has always proved a total failure. Any inferences drawn from the employment of the so-called “cavalry” of the Americans during the late war must be fallacious, since they were mounted riflemen pure and simple. They were enormously valuable, but their sphere of usefulness would have been considerably limited had there been any real cavalry to oppose them.

I am far from despising mounted rifles; on the contrary, I believe that the first European army that makes use of them will gain thereby great advantages; but it is absolutely necessary that they should be distinctively *infantry*, using their horses only as a vehicle to obtain increased power of locomotion. To *fight* on horseback is the province of the cavalry soldier alone, and to that he should be as much as possible confined. The previous chapter was entirely devoted to an attempt to show that

there is still ample scope for the legitimate use of cavalry in battle.

Let it be granted, then, that the use of fire-arms by cavalry is not normal, but exceptional; it must in turn be allowed that the occasions on which they may be resorted to are numerous, and in their way important.

A fire-arm of some sort is, in fact, indispensable to every cavalry soldier. Not only that, but as a trooper, when compelled to fight on foot, is now placed at a double disadvantage on account of the inferiority of his fire-arm, it is highly advisable that some, at least, should be provided with a weapon that may enable them to cope with a like number of infantry soldiers on tolerably even terms.

Boguslawski,
"Tactical
Deductions from
the War
of
1870-71."

"In the forays, and encounters which resulted from them, on the Loire and in Brittany, etc., our cavalry was often met by dismounted French horsemen armed with the chassepot, whose fire absolutely stopped the advance of our men. . . .

"Fights took place on foot for the possession of certain localities, sometimes even against French infantry, and often ended with the victory of our light horsemen.

"The lancers, in consequence of these circumstances, did their best to arm themselves with chassepots, for even the needle-carbines of our hussars and dragoons were, according to our officers, not up to the mark. According to all those who took part in these affairs, it is desirable to arm our cavalry with a long-range carbine.

"The question is simply that of enabling cavalry at need to overcome the resistance of riflemen in small numbers. . . . We think that an improved needle-carbine should be issued to the light cavalry and to one section per squadron of lancers and cuirassiers."

In the early part of the campaign the French were marvellously slack in their picket duties and reconnais-

sances, the infantry apparently being no less to blame than the cavalry, and consequently the uhlans used to ride about pretty much as they liked. Had the Prussians, however, been opposed by an active and wary enemy, there would most certainly have been a good many more of the sort of affairs above alluded to. In future wars, when the country is at all close, such skirmishes will be of constant occurrence; and in order that cavalry should attain the maximum of efficiency, it would appear necessary to arm a certain proportion of men in every squadron with as good a rifle as can be procured, not exceeding a certain weight, but having a range of at least 800 yards. These men receiving a special training, would be able to contend successfully with small bodies of infantry on their own ground, and we should be spared the painful spectacle of a little handful of well-posted riflemen being able to keep whole squadrons at bay—obliging them, perhaps, to wait until some of their own infantry come up, before their numerically insignificant foes can be got rid of.

The use of a limited number of selected men for this purpose, while conferring great advantages on the cavalry generally, would not, I think, at all affect that spirit on which I have so much insisted. The feeling among the men would, if put into words, be something like this: "These confounded foot-soldiers of the enemy go sneaking about in woods and behind hedges, where we can't charge them. If they would come out in the open, we would soon show them what we can do. As it is, they must be got rid of somehow, so let those of our fellows who have fire-arms as good as theirs go and tackle them."

This is a very different thing from what would be the case if all the men had rifles, and were of course made to use them. In the one case, the *exceptional* nature of the service would be clearly understood by all ranks; in

the other, a belief in the general superiority of fire-arms over the sabre and lance would soon be engendered—than which nothing can be in more absolute opposition to the true cavalry spirit.

It is acknowledged that cavalry, as cavalry, cannot—at all events, does not—attack considerable bodies of infantry in a state of preparation; and to dismount them in masses, thereby turning them into a sort of bastard foot-soldiers, is not at all the way to render them more successful in the present, or efficient in the future.

What is wanted, then, is not that the whole mass of cavalry should learn to fight on foot, but rather that a certain number of intelligent men should be selected from each squadron, armed with a formidable weapon, and generally intrusted, not only with the dismounted fighting, but also with those highly important duties which come under the head of *scouting*. For these latter they would be peculiarly fitted.

The fatal tendency of late years has been to generalize, to try and do away with specialities, and to expect every soldier to do everything equally well. It was not so at the period of our greatest military renown, at the epoch of Waterloo. I doubt if the greatest optimist in military matters would venture to call the present system, as judged by its results, satisfactory. It is, in fact, an attempt to reverse the laws of Nature, who produces men with such varied forms and intellects, that some will always be found to excel others in any occupation whatever.

The principle of selecting men for the performance of certain duties, as above specified, is therefore in accordance with reason, with past experience, and with the requirements of the case. It is also obvious that if only a limited number of men have to be taught any particular work, these, too, being selected for their natural fitness for

the same, a much higher degree of excellence will be obtained than is now *possible*.

The next point to be considered is what proportion of men will be adequate for the efficient performance of these duties.

Boguslawski thinks one section (one-fourth) of each squadron sufficient in the lancer and cuirassier regiments.

Von Bismarck, writing nearly sixty years ago, proposed to add a fifth division of skirmishers to each squadron. His idea seems to have been rather in advance of the time, for at that period the Prussian cavalry, animated with the traditions of Ziethen and of Seidlitz, regarded the use of fire-arms with something approaching to contempt. They were probably right; but, unfortunately, in the present day we cannot afford to be equally haughty.

In the British service all the men (lancers, of course, excepted) are armed with the same fire-arm, and all are supposed to be equally efficient in dismounted fighting. As, however, the half of any force has always to remain mounted and ready for action, while half the remainder are holding the horses of the men on foot, it follows that, after all, only one-fourth can be employed in this manner at one time.

Practically, then, under each of these three typical systems, the number of men available for dismounted service would be about the same. That of Bismarck, however, with certain modifications, appears to be, on the whole, the one best adapted to modern requirements.

As the subject is important, I make no apology for inserting an extensive extract:—

“The advantage which a certain number of skirmishers—“Cavalry in War.”
From the text of
Bismarck, that is, active horsemen who have acquired the manner of fighting in open lines—gives to the squadrons is evident.

by Captain
N. Ludlow
Beamish,
late 4th
Dragoon
Guards.

"But as whole regiments and squadrons, as well in regard to *personnel* as *matériel* (where no national cavalry exists, such as the Cossacks, Mamelukes, etc.), can never attain this perfection, it appears better to select those only who possess the necessary requirements.

"If the men or horses were chosen from the other squadrons, the rule would be as difficult as imperfect, for every captain regards that as lost which, although for the general good, he loses from his own squadron; he endeavours, therefore, to withhold the best men and horses, on whom he places his trust in the day of battle.

"It is otherwise if he forms a fifth or skirmishing division for himself, which he may consider as his property, which renders him service and does him honour.

"If a squadron is sent out, the skirmishing division goes with it. The captain can make occasional changes, according as a skirmisher does not accord with the presupposition of his bravery and ability, or by dishonourable conduct shows himself unworthy to be a skirmisher.

"Besides, the full instruction of all is not by this means excluded; only that these skirmishers, being more particularly attended to, are brought nearer to perfection. In this manner the organization will reach to a degree of completeness which neither squadrons of skirmishers nor entire light regiments of that kind can ever attain.

* * * * *

"Whoever knows, from his own experience, how much must be combined—man, horse, and weapon—to form such skirmishers as are here described; whoever has experienced the immense labour which such an organization requires, and which never could be attained in entire regiments or squadrons, will acknowledge the advantages of

a system which contemplates *divisions*, and not squadrons, of skirmishers."*

Bismarck's skirmishers, it is true, did not fight dismounted, but used their fire-arms from horseback; this, however, does not affect the point now under discussion, since the practice is in the present day condemned on all sides, and skirmishers, in future, will commonly dismount when they engage the enemy.

The half-and-half plan of dismounting without letting go the horse, firing, and then getting back to the saddle, is only applicable to desultory skirmishing, or the preliminary exchanging of shots which may precede more serious business. The horse is too valuable, and, when stationary, too easy a mark for modern riflemen, to be needlessly exposed.

Bismarck's principle of organization is therefore equally, or even more, suited to the present than his own time. Only, instead of uniting the fifth divisions into one squadron in the field, it would be preferable to leave them with the squadrons, by which they will be more available for scouting and such like. As the rear rank would be done away with, or, rather, would be acting separately in rear, it would be feasible and proper to distribute these skirmishers or scouts in the *serre-file* rank: obviously a convenient arrangement, when we remember that there would be one of them to each four in each line of the squadrons. I do not think I need stop to argue that to place them in this position would entail none of the disadvantages of a solid rear rank. On the other hand, they would have a

* "Count Von Bismarck's original publication made its first appearance in 1818, under the title of 'Vorlesungen über die Taktik der Reiterei,' and may be considered as the digest of the author's labours in the reorganization of the Wirtemberg cavalry, with which he was intrusted immediately after the close of the previous war." (Preface to the work from which the above quotation is taken.)

perfect liberty of motion, and could gallop out to front or flank and resume their places without in the least disturbing the order of the regiment, in whatever formation it might happen to be.

After all, this rank of scouts or skirmishers does not differ greatly from the rear rank of the Austrians, which is often only half the strength of the front rank, and has the disadvantage of varying in number. By the above arrangement the strength would be fixed (to a man or two), and would always be one-fourth that of the front rank.

When an attack was made, they would keep their horses well in hand, and so far from interfering with the charging line, would be careful to keep at least half a dozen horses' lengths away from it. Thus they will neither imperil its steadiness nor add to the individual risks of their comrades in front. And it cannot be denied that a great effect may be produced by a few brave and intelligent men, who rush sword in hand into the gaps of the enemy's line, when reeling and disordered from the shock of the charge.

The fire-arm of the skirmisher, or *scout*,* as I prefer to call him, should be, as before stated, a rather light rifle of the best procurable construction. Some sort of repeating rifle would seem to be the best arm, provided it can be loaded and fired one shot at a time, like the ordinary breech-loader. It seems certain, indeed, that the repeating rifle is the weapon of the future; but however that may be, its advantages for the use of such soldiers as cavalry scouts would be are obvious—any slight deficiency in range being compensated for by the power it possesses of allowing an enormous amount of fire to be developed in a very short time.

* The sort of scouts here proposed are of course not at all the same thing as *scouts* as it is now understood by the same term, and cavalry officers must please bear this in mind while reading the following pages.

and
division
the
it

I will here remark that, although so much impressed with the necessity of selecting a number of men to whom all fighting with fire-arms will be in general intrusted, arming them with a superior weapon, and training them to its use, it is no part of my programme to deprive the rank and file of their carbines, which in our army are certain to be effective weapons, well up to the work they have to do. As Bismarck points out, the special training of the selected few is not incompatible with the general instruction of the remainder. Such instruction should certainly be given them as will allow of their acting, when necessary, as supports to their rifle-armed comrades, to whom, however, the fore-front of this sort of battle must invariably be assigned. I do object, however, to such instruction being carried beyond a certain point. A very moderate amount of drill and practice will render the rank and file of the squadrons perfectly well up to any foot-work they ought to be called upon to perform.

It is now necessary to go a little more into the question of organization, at least so far as the working of it in the field is concerned. This subject is fully discussed in the next chapter; but some details as to the composition of a squadron must be gone into, so that we may understand how available material can be best arranged for the due performance of the work that has to be done.

In the preceding chapter I endeavoured to show the advantages of a system which would substitute two lines for two ranks. The two lines were then spoken of as a front-line squadron and a rear-line squadron. As, however, they both form *one* body, it would be more correct to say the front or rear line of a squadron. The distance to be maintained between the lines was laid down, for the general purposes of manœuvre, etc., as equal to *one* front, plus a squadron interval. (See Fig. 9.)

The strength of bodies will still be computed by *files*,* when two lines are present; otherwise, by *men* when on foot, and by *horses* when mounted parties are spoken of.

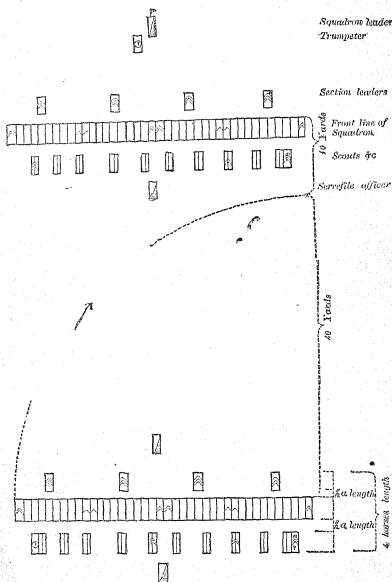


FIG. 9.—A squadron of forty files in line. Scale, $\frac{1}{300}$.

The strength of a squadron will be fixed at from 32 to 40 files. A regiment may consist of any number of squadrons, provided their strength is kept within

* Never less, "a file" will mean one man in rank and not two.

the above limits. When speaking of these bodies hereafter, when no strength is mentioned, it is to be understood that a regiment is supposed to consist of four squadrons, and a squadron of 40 files.

Each line of a squadron will be divided into two subdivisions and four sections; the latter numbered 1, 2, 3, 4 from the right. Consequent on the strength of the squadron, the strength of the sections would vary from eight to twelve horses. Every section would have a sergeant as leader, riding half a horse's length in front of the line.

Each line would also have its own leader. The senior would command the squadron when apart from the main body; but it would make no difference who led the front and who the rear line when the squadron was acting with the rest of the regiment. There would be one *serre-file* officer to each line. If a fifth officer was present, he would be the squadron guide of that line which was led by the senior officer, or squadron leader proper, and would be termed the front-line guide. He would then be ready to take the leader's place, if necessary, until relieved by a senior officer. A sixth officer being present would naturally be the guide of the other line. If there was a paucity of officers, the leader of the third section would, when in line, place himself in front of his right-hand man and guide the line. Or this arrangement, if considered preferable, might be made the rule instead of the exception.

A squadron interval would be equal to the breadth of one section; it would therefore vary from eight to twelve yards.

As "a squadron" is composed of a front line and a rear line, so will a "half squadron" mean a subdivision of the front line followed by the corresponding subdivision of the rear line. A "quarter squadron" would be any section followed by the same section of the other line.

The squadron would manœuvre by sections, fours, *twos*, and files, each line remaining distinct in itself. On the march one line would *follow* the other, making one column. In manœuvring, sections may be inverted, the right section being always No. 1.

The scouts would be placed in the *serre-file* rank, at half a horse's length from the front rank. I think this (the old distance) is preferable to the full horse's length, which is just sufficient to allow of the men in rear catching all the dirt and gravel thrown up by the horses in front. At present, of course, it is necessary to allow sufficient room for the fours to wheel.

Two horses on each flank should always be left uncovered. There will then be no need for any one to incline in wheeling.

During an advance in line, even at a walk, the *serre-file* rank should take three horses' length distance, which should be doubled when the pace is increased to the gallop. When the charge was sounded, they would not join in the rush forward, but, seeking a favourable point, would then endeavour to penetrate the enemy's line, and push right and left.

On these occasions the *serre-file* officer will lead the rank; at others, if in column, he will be *in* it; if in line, half a horse's length in rear.

As the number of horses in each section varies from eight to twelve, so will the number of scouts be always either two or three to each section. When parts of the squadron are detached, the scouts will (unless previously sent out) always accompany the sections to which they belong.

When the sections wheel right or left, the scouts turn their horses and ride on the outward flank of their section.

Vide Fig 16, p. 197; the scouts are half shaded.) If it is

fours right or left, one scout rides on the outward flank of each section of fours. In both cases, if their presence is required on the other flank, the whole or a part, as directed, would check their horses, and, passing through the interval between the squadrons or lines, would gallop out in the direction indicated.

Before leaving the details of organization, there is another point to be touched upon, and that is the great advantages that are to be derived from the introduction of cavalry *pioneers*.

Like the plan of separate skirmishers, the idea is not a new one, and seems to have been originated by Frederick the Great. The Austrians, however, have been the first to introduce pioneers into the permanent organization of their cavalry regiments; and their utility was so abundantly manifested during the campaign of 1866, that the Prussians and other nations are now following their example.

"The end aimed at by General Edelsheim in creating this organization, which now dates from ten years since, was to render the cavalry independent, to enable it to fulfil by itself and without the assistance of the other arms the various requirements of service as advanced-guard, and to give it the means of surmounting those obstacles which serve to arrest and retard its action. The companies of engineers are not so numerous, nor, above all, are they so rapid in movement, that it is possible to count always on their assistance, especially in improvised *coups de main*, which are the specialty of cavalry; and thus it frequently happens that a contemptible obstacle suffices at times to delay the advance of a body of advanced scouts for several hours.

"To give to the cavalry the means of dealing, on the march and in bivouac, with the numerous eventualities of service in the field, is to gain for it a freedom and security

"Revue
Militaire
de l'Etran-
ger."
Trans-
lated in
"Proceed-
ings of
U.S.I.
of India."

which largely develops its action in presence of the enemy. Thus, in the spirit of General Edelsheim's instructions, the pioneers of cavalry, whether they be hussars, uhlan, or dragoons, are always, first and before all, made into excellent horsemen, and can be used in the boldest reconnaissances; and while they constitute a precious means of overcoming material obstacles, they do not cease to remain in the hands of their colonels, and do not diminish by one sabre the effective strength of the combatants."

In the Austrian service each regiment has a "pioneer section" (with them one-fourth of a squadron), which is always the fourth of the sixth squadron. For us, however, it would appear equally advantageous and certainly more simple, to have ten pioneers per squadron, non-commissioned officers included. This would make the organization of each unit complete in itself, and it would be more independent when detached.

On parade the pioneers would be united, and would fall in in a separate body, those of each squadron forming a section by themselves. The whole would be a half squadron, and would be led by a selected officer, who would also be charged with their instruction and supervision in quarters, without interfering, of course, with the authority of officers commanding troops or squadrons.

The details of the organization and equipment of the pioneers will be more fully considered in the next chapter.

Having thus roughly outlined an organization which appears fitted for the proper carrying out of the ends in view, let us proceed to examine the circumstances under which the cavalry soldier, abandoning for the moment his natural method of fighting, is impelled to have recourse to the rifle or the carbine.

The subject may, for convenience' sake, be divided into "scouting" and "skirmishing or fighting on foot." In the former, fire-arms are resorted to purely for self-protective purposes, and this admits of mounted as well as dismounted firing. The latter may be subdivided, after the manner of Von Scherff, into offensive, defensive, and temporizing combats.

Scouting.

This is a somewhat vague term, signifying the active part in the performance of those explorations and reconnaissances which form so large a portion of cavalry duties. Used in a general sense, it means the operations of those small parties or single individuals who always form the extreme advance. Considerable bodies are sometimes said to be "scouting" when sent out on a reconnaissance, or to feel for the enemy; nevertheless, the real "scouting" is performed by the small bodies pushed out in various directions, and they, again, frequently obtain their information by the observations of one intelligent individual, who goes on alone for a short distance, while the remainder stay quietly behind. The main body of the party acts only as a support to its scouts.

It is not uncommon to hear "scouting" and reconnoitring used as almost synonymous terms; but a considerable distinction should, I think, be made between them. A *reconnaissance* is an exploration undertaken for a clearly defined object, and in a definite direction. Scouting, on the contrary, is indefinite. In actual warfare, the cavalry scouts are always out, pervading the enemy's country and picking up all the information they can (he) every description. When the enemy's troops are met with, it is their business to stick to them, never letting them out

of sight for a moment, and reporting their every movement to the larger bodies in rear.

Of scouting in general there may be said to be two kinds—the first, in which a few men are despatched to examine the ground in the immediate neighbourhood, and over which the cavalry may have to fight or manœuvre; the other, the much more extensive business which is carried on from outposts, or from the cavalry divisions covering the front of an army in movement.

The former, however, is also highly important, and should never be neglected. With the organization I have described, cavalry can, if they choose, and subject to the necessity of saving unnecessary fatigue to the horses, surround themselves under all circumstances with an *entourage* of scouts, screening their movements, examining the country, and forming an absolute safeguard against surprise. These advantages would be attained without the necessity of breaking up any formed body.

It is, however, in the presence of the enemy, or where cavalry are in position and may at any moment have to advance to the attack, that it is most necessary for the leader to be made acquainted with the details of the ground in his vicinity. To ascertain, by means of scouts, the existence of obstacles, etc., on ground over which one may have to charge, would appear to be a simple and obvious precaution, and it is advised by all authorities on the handling of troops. Nevertheless, it would seem to have been continually neglected both by our own and other cavalries, as proved by a long list of disasters which have befallen cavalry from suddenly plunging into some unknown obstacle when in the full career of a charge.

The new cavalry regulations have, for the first time, provided a certain remedy against the recurrence of such accidents. The number of scouts, however, is but small,

and though probably sufficient for all ordinary occasions, yet it is obvious that sometimes many more will be required. The horses of scouts will get much harder worked than those of their comrades, and there is no relief provided; this, perhaps, is not of so much importance, as our scouts have no particular training, and any tolerably intelligent men may be used for the purpose. To have a good number of trained men always at hand would, however, be very advantageous; and more than that, by the arrangement I have proposed, scouts can be reinforced and converted into skirmishers, and *vice versâ*, with the greatest ease, whereas now a troop or troops must be taken from the line for the same purpose.

At present, also, we have a very complicated series of arrangements, which entails the telling off and detachment of small patrols under various designations. When anything more than a cursory examination of ground in front of a body of cavalry is required, it would appear that some such system as is here proposed would not only greatly simplify this portion of cavalry duties, but that the work would actually be better performed.

There is no doubt that men instructed and practised in scouting will be very much more efficient than casual performers, however intelligent. One very important point is the necessity not only of discovering obstacles, but of seeking out and marking points of passage across them. To do this rapidly and well requires considerable training and practice.

"At Zorndorf, Seidlitz's cavalry was formed on the extreme left of the army, and separated from the remainder by a small stream. Judging from the position of the enemy, whose right rested on this stream, that he would probably be engaged on the other side of it, Seidlitz had the stream reconnoitred, and troopers stationed at the points

"Minor Tactics,"
by Captain
Clery,
32nd Light
Infantry.

where it was passable. When subsequently obliged to cross it, his cavalry did so without impediment or delay of any kind."

It should be a point of honour with the scouts to run any risk in effecting their object, which is never fully attained until, along with the existence of the obstacle, they have made themselves acquainted with the means of surmounting it. If, on account of the enemy's fire or other reason, it is impossible for men to post themselves as markers, an artificial sign of some sort may sometimes be substituted. If this, too, is impracticable, the scouts can at least endeavour so to impress the localities on their minds as to be able to guide the troops up to the crossings without hesitation or delay.

When feeling for, or in presence of, the enemy, scouts should always be in pairs; they should also invariably be supported, otherwise they cannot be expected to display much enterprise.

The scouts of each squadron being a "section," they should work together under their non-commissioned officers, those of the rear line being kept together in support, and holding themselves in readiness to come to the assistance of their comrades with sabre or rifle, as may be necessary. Small patrols would be formed by the scouts of a section or subdivision acting together.

When an enemy is present, scouting for information must necessarily lead to skirmishing, but no change of formation would be required, except in the way of reinforcements. The strength of the scouts should be regulated in a great manner by the amount of resistance likely to be met with.

This is in accordance with the general principles of the single-rank system, and the same idea—that of the front-line scouts examining the ground, skirmishing, etc., closely

supported by their rear-line comrades—would be carried out on all occasions; at least, until the necessity for dismounting became apparent.

In skirmishing, or if a large number of scouts were out at once, they would be led and controlled by two or more officers selected beforehand for that purpose.

When cavalry are covering the flanks of an army in battle order, their scouts should not only explore all the ground over which the mounted force might have to act, but should also continually patrol as nearly up to the enemy as possible, in order to obtain the earliest information of an intended turning movement, or the like. The scouts of each squadron might be despatched in succession throughout the day on this duty, which is quite irrespective of, and in addition to, the small pickets or stationary posts, which are invariably thrown out to observe the ground about the flanks.

Of such movements as that of the Crown Prince at Sadowa, or of Blücher at Waterloo, the cavalry scouts, backed up by proper supports, ought to obtain the earliest information. With a sufficient number of well-trained and intelligent rifle-carrying men forming a part of every squadron, it ought to make no difference to cavalry whether the country is open or close, rocky, woody, and difficult, or plain and easy, when the obtaining of information and not fighting is the object in view.

It is not necessary to speak further of this kind of scouting; and as for the more extensive operations in this line, which I have alluded to as being carried on from the outposts and by bodies of advanced cavalry, it is obvious that properly armed and trained scouts will be able to render services of the highest value when cavalry are engaged in these duties, the importance of which is now fully recognized in our own army, as well as abroad. So

much, indeed, has already been written on these subjects, and by far abler pens than mine, that it would be unnecessary, as well as unbecoming, in me to venture further on the same ground.

Fighting on Foot.

We have seen how the extensive scoutings and reconnaissances, which form so large a part of the duties of cavalry in the field, are certain to involve us, particularly in woody or inclosed countries, in encounters with an enemy who must either be attacked on foot or left alone. The latter course, which is not only repugnant to the feelings of every soldier, but also involves the abandonment of the object for which the force is working, must often be the only alternative for cavalry in its present state of armament and organization.

The object of the new organization is to enable the horsemen to push aside such weak parties of infantry or dismounted dragoons as are likely to oppose them, and to proceed upon their real business without unnecessary delay.

In the small actions that will result from these encounters, the scouts, of course, would take the principal, if not the only, part. It will, however, be sometimes necessary to support them with dismounted bodies of the rank and file.

Cavalry fighting with fire-arms on foot are necessarily subject to the same laws, and must adopt, as far as in them lies, the same tactics as regular infantry. In contradistinction, then, to the proper action of cavalry, which is always offensive, this sort of fighting has three methods—offensive, defensive, and temporizing—each of which must be separately considered.

Although it is not very difficult to ascertain the broad principles which ought to guide us in any sort of contest, yet the details will be liable to constant modification; the following pages, therefore, contain what can only be considered as indications of the manner in which these various combats may be carried on.

The Offensive.

The fight would nearly always begin by exchanges of shots and desultory skirmishing between the scouts covering the force and the enemy's riflemen or dragoons; for some scouts would invariably be thrown out, whatever situation or formation the main body might be in; and the greater the probability of an encounter with the enemy, the greater, naturally, would be the number of men detached to the front and flanks.

In such case, the advanced scouts would somewhat resemble a line of skirmishers, but, it being supposed that they are well up to their work, they would be allowed a very great degree of latitude in their movements.

The scouts of each line of each squadron would be considered a "section," and would be led by their own sergeant or corporal when detached. Ten would be the average strength of each section, including the non-commissioned officer. As a rule, scouts belonging to the front line would be in advance. Their natural supports would be those of the rear line, in separate sections, each more or less in close order.

Section leaders would see to the proper examination of such clusters of buildings, copses, hollows, and other cover, as might lie within their respective beats, but both the advanced and supporting lines would be under the general control of the officer leading the scouts or skirmishers.

So long as the enemy's fire was confined to dropping shots, the advancing line would move on, replying as opportunity offered, and either dismounting to fire or firing from the saddle, as the men's fancy and the steadiness of their horses might dictate. If the hostile fire became brisker, the officer leading the advanced scouts would direct the men to dismount, passing the word along the line, and making at the same time a signal to the supports. These would at once come up, and *each section would take the horses of their comrades of the same squadron.*

As no serious resistance has as yet been encountered, it will not be necessary for the men leading horses to remain further away from the skirmishers than is needful to avoid loss. They would remain extended, following their comrades and taking advantage of cover. The commander may, if he thinks it desirable, order out mounted parties to watch and protect the flanks.

Nothing, so far, being known of the enemy's strength, it is as likely as not the skirmish may come to an end at any moment. The dismounted scouts would then remount, the horses being close at hand, and things would go on as before.

Either this would happen, or before long the enemy would show unmistakably that he intended to resist being pushed back. When, from the increasing volume and stationary position of the enemy's fire, it becomes evident that a stand is intended to be made, the leader of the skirmishers would signal to the rear sections leading horses; the officer with whom would repeat the signal, or otherwise communicate with the main body.

It would be immediately understood that the skirmishers required support. This would naturally be afforded by the rear-line sections, were not the latter in charge of their comrades' horses. It is, accordingly, of the first importance

to disembarass these men not only of the horses they are leading, but also of their own, in order that they may advance at once to the support of the skirmishers, or first line, in the combat which is now commencing.

The most preferable way of doing this would be by detaching a quarter squadron (one front-line and one rear-line section) from each squadron. On the command being given, they would go out at the gallop, and take over the whole of the scouts' horses. The front-line sections, getting up first, would take the horses of their own scouts; this would free the rear-rank men, who would thereupon dismount, hand over their horses to the rear-line sections as they arrived, double to the front, closing on their own leaders, and form a chain of supports to the advanced skirmishers.

The led horses would now seek the protection of the main body, forming up in a regular and well-ordered mass as they did so. It would, however, depend entirely upon circumstances whether they moved back to the regiment, or allowed the latter to come up to them.

The whole of the scouts, amounting on an average to about 80 rifles if an entire regiment was present, would now be on foot, and this force would generally be fully sufficient to deal with such small bodies of hostile infantry as might be ordinarily encountered.

There would still remain three-fourths out of the four squadrons effective; that is, the leader would have in hand four weak squadrons of three, instead of four, sections in each line. At least one, though more probably two, of these would be required to guard the led horses; with the remainder, the commanding officer might make such dispositions as the nature of the ground rendered expedient or practicable, for protecting the flanks of his dismounted attack.

The actual fight would be necessarily conducted in precisely the same manner as if the assailants were infantry instead of cavalry soldiers; the firing line advancing by short runs, probably by alternate sections, and sheltering themselves behind cover as much as possible.

The supports being already in very small separate bodies would not have to be extended, unless when crossing very open ground. They would replace casualties and reinforce the fighters as might be necessary; and to manage this is the special task of the section leaders of that line. It is a somewhat difficult duty, and to perform it with judgment their attention must be concentrated on the fighting line in front of them. It is no part of their business to look to the rear, or to take thought as to whether they are themselves being supported.

The leader of the force, who is watching the fight, will have to decide, when he observes that the line of supports is nearly used up, whether to dismount some of the rank and file and order them to the front, or to sound the "retire"—which means that the attack has failed.

Fire actions, however, on this tiny scale are seldom very hard fought, as it is commonly the policy of those on the defensive rather to retard the cavalry force by tolerably safe methods, than to run the risk of being cut off by prolonging the action beyond a certain point. It must also be remembered that these combats will generally be fought over broken or inclosed ground, where natural cover is abundant, and this, in the present day, is recognized as conferring great advantages on the assailants.

Sometimes, however, the enemy may be in sufficient numbers, or so strongly posted, with flanks secured and an easy line of retreat, as to be able to offer a considerable amount of resistance. When this is the case, and nothing in the way of a mounted attack can be accomplished, the

scouts alone may find themselves unable to dislodge an enemy who fights so vigorously. It will then become necessary to dismount one or two of the three-section squadrons, and march them to the assistance of their overmatched comrades.

If the reinforcement is sent directly to the front, the sections of scouts now in support would be able at once to move up into the fighting line, supposing they have not already done so, the fresh bodies becoming the supports. If these were two (*i.e.*, of course, *half* of two) of the reduced squadrons, they would number about 60 men, which, with the 80 scouts in the first line, makes a sufficiently formidable total of 140 rifles and carbines now brought to bear upon the enemy.

The attack is now really a strong one from the amount of fire developed, which can be doubled at the critical moment if the scouts have repeating rifles. It is, however, weak in one respect, and that is the absence of a third line, or main body; nor, as a rule, can any more men be sent to the front with a view of supplying the deficiency, as the three-fourths of two squadrons still remaining are necessary to guard the led horses. The attack consequently cannot, without running great risks, be pushed beyond the second stage; that is to say, the efforts of the men fighting on foot must be confined to the employment of fire, and no actual rush at the position ought to be attempted, because, even supposing it to be won, a counter-attack of the enemy (who may have been able to bring up fresh troops) upon the victorious, but disordered and unsupported, assailants would certainly entail the most serious consequences.

The advanced line, then, would in general avoid getting nearer to the opponents than about 300 yards; but it must be said that, if they could deliver a heavy fire at that

distance and at the same time make some show of enveloping one or both flanks, it would probably be quite sufficient to induce the enemy to retire. If they do *not*, the alternative is to withdraw some little distance, and convert the earnest attack into a temporizing combat, with the intention either of renewing the fight when expected reinforcements have arrived, or of retaining the enemy in their position while some road or way is being sought for, by which it can be turned without coming under fire.

I have been supposing that the attack must necessarily be made directly in front. In practice, however, it will frequently be found that the flank or rear of the enemy may be got at, even when apparently most secure.

Here cavalry have a decided advantage over infantry, for their superior rate of motion will enable them to take a much more circuitous, and therefore safer, route for the attainment of their object, than the latter could possibly manage. It will be practicable, for instance, for the commander, when the enemy does not at once retire before the advance of the scouts, to direct a mounted squadron to gain the flank of the enemy by a wide and rapid *détour*. They would then be in a position to attack with half their numbers from a new direction, and the precipitate retirement of the hostile detachment would follow almost as a matter of course.

If the ground about and in rear of the position is fairly rideable, it would probably be sufficient for them to show themselves without dismounting, to cause the enemy to think only of making their escape.

It is not to be imagined that such enterprises will not contain a considerable element of risk: the uncertainty as to the presence of the enemy, and the danger which must be run by an isolated detachment of being caught and attacked when in a position in which it cannot defend

itself, will always render a large amount of caution necessary in executing this manœuvre. The party detailed for it must neglect no precaution in the way of covering its advance with scouts, and examining defiles and other places where it might be surprised, before committing itself to them. If the scouts proper are all engaged with the enemy, their places must be supplied by other intelligent men, or, better still, the scouts belonging to that particular squadron would be withheld from the fight and sent with it.

A certain number, if not the whole, of the pioneers would also be detached on this service. It is obvious that their services would be extremely valuable in overcoming material obstacles, and smoothing away difficulties in the path of the squadron or squadrons making the turning movement. They would also form an efficient guard for the led horses when the rank and file dismount to engage the enemy on foot.

It is also essential for the success of any attempt of the above description that the attention of the enemy should be fully occupied by the attack in front.

So far we have only imagined an enemy weak in numbers, and intent merely on offering so much resistance as may serve to delay the assailants, without compromising their own safety; but it may also happen that the leader of a cavalry force will find himself in presence of a body of the enemy occupying some important point—a barricaded bridge, a defile, a knoll or elevation which is the key of a position, a hamlet on a great road, or the like—the value of obtaining immediate possession of which may be so great as to render it a matter of consideration for him whether it is not his duty to incur certain loss, and the risk of a possible repulse, by endeavouring at once to deprive the enemy of the point in question, without

waiting for reinforcements of the other arms to come up—a delay which will probably be more beneficial to the enemy than to himself.

If, however, the enemy are good troops, the cavalry leader would not, under any circumstances, be justified in attacking alone when the strength of the enemy appeared to exceed *one-third* of that which he is able to bring against them. If he can command the assistance of horse artillery it would make a difference, since they would prepare and support the earlier stages of the attack; but in no case whatever should the numerical strength be less than double that of the opponents, the latter being the least odds which are considered to justify an attack by *infantry* on a regularly defended position.

When, however, the enemy is greatly demoralized, or consists of an inferior race, as is so often the case in British campaigns, it is allowable to despise one's foes to a certain extent; but even here we must remember that a disorganized soldiery, or undisciplined Asiatics, will often fight very stoutly behind defences, when by no inducement could they be got to face their enemy in the open field.

Although this sort of fighting must be regarded as altogether exceptional, and strongly to be deprecated as a practice, yet it is true that cavalry have sometimes been strangely successful in it, of which recent examples are not wanting.

Captain
Clery,
"Minor
Tactics."

"At the battle of Spicheren, the necessity for sending reinforcements to the front left only two squadrons of dragoons and a company of sappers to hold Forbach. On the approach of the advanced-guard of the 13th Prussian Division, the dragoons dismounted, and occupying an entrenchment held the Prussians in check for a time by their fire, in conjunction with that of the

sappers. When finally outflanked and outnumbered, they remounted and retired to a position in rear, having first charged the enemy. Again, on August 31st, Clerembault's cavalry division having got separated from the infantry, a squadron dismounted to hold the enemy's infantry in check until their own had come up. The fire from the village of Corny in their front became so galling that a regiment of dragoons was dismounted and ordered to attack the village. This they did successfully, and held it until their own infantry arrived.

"But the employment of cavalry in this way must be looked on as exceptional; yet the necessity that may arise for it cannot be disregarded."

I have been told that on one occasion during the mutineers' war in India, a number of the enemy had got, as was not uncommon, among high crops of bajaree and jowaree. These, as will be well remembered by all who have visited that favoured land, grow to a height of six feet or more, and are very thick. The gallant officer commanding the Queen's Bays, which regiment was in front, volunteered to dismount his men and drive out the scoundrels; this, it is said, after a certain distinguished battalion had declined the task. I should be sorry to vouch for this part of the story, but the fact remains that the Bays went in on foot, and cleared out the enemy in gallant style, inflicting considerable loss with their Sharp's carbines (a much superior weapon to the Brown Bess or matchlock of the rebels).

It was well done, but would not have been practicable, I imagine, had their opponents been European infantry of any nation.

When a cavalry commander decides on engaging his squadrons in so serious an affair as an attack of this nature, all other considerations must give way to the

necessity of using his utmost strength to effect the immediate object in view. It is of vital importance to get every available man to the front, and this can only be effected by *linking horses*, and reducing the mounted guard to the narrowest possible limits.

In the actual attack the advanced line would be formed by the scouts in the manner before described. Three out of the four weak squadrons in hand would have to be dismounted and their horses linked. The fourth would form the mounted guard; to which also may be added the pioneers, who, it must never be forgotten, are effective fighting men, and therefore legitimately available for any mounted duty. It should, however, be accepted as a principle that the horses of the scouts are never to be linked, even on occasions similar to the one now under consideration. The power which is thus left of taking up their horses to the scouts, and mounting them at any moment, is one so generally valuable that it should not be abandoned even for the sake of bringing another 70 or 80 men into action.

The scouts, about 80 strong, forming the first line, would have as supports the front lines of the first and second squadrons, say 30 men each. They would be in the same formation—generally a chain of separate sections—and act towards the first line as before described, or as infantry supports are accustomed to do. We shall have now, however, an element which was before wanting, *i.e.*, a third line or *main body*. This would be composed of the rear lines of the first and second squadrons, and of both lines of the third. Its total strength would be 120 men—a pretty fair proportion to that of the skirmishers and supports, who would amount together to about 140. The main body would advance, at all events until within 500 yards or so of the enemy's position, in squadron columns,

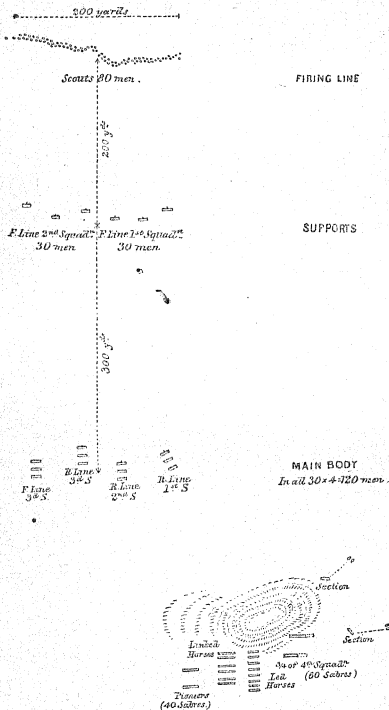


FIG. 10.—Dismounted attack, using the largest available force, in all 260 rifles and carbines.

or such formation as is best adapted to the ground ; afterwards it might be found necessary to spread them, first into a line of sections, and ultimately into an extended line like that of the skirmishers. This formation should, however, be avoided if possible ; as, besides the danger of an attack by cavalry (against which it may or may not be necessary to guard, according to the nature of the position attacked), there is the impracticability of keeping an extended line in hand—that is, under the control of one man, the leader of the force, who has to depend upon this body as his sole reserve.

All the stages of the regular infantry attack would have to be worked through, including, in this case, the final one, when the fighting line having by this time absorbed the whole of the supports, and got, perhaps, to within 150 yards or so of the enemy, the “advance” and “charge” would be sounded, and, drawing swords, a rush for the position be made, with a ringing cheer.

It would, however, be advisable to restrain, if possible, a portion of the main body from joining in the assault. For although the impulse of comparatively fresh troops is necessary to give due effect to the latter, yet we must never forget that behind the actually attacking force there are no second-line battalions or other reserves to hold the position when won, or to meet a counter-attack. It would, therefore be necessary to keep half the main body in hand for such contingencies.

As soon as it was perceived by the officer in charge of the *led* horses that the point of attack had been gained, he would move forward, as would also the mounted guard, leaving the linked horses for the moment in charge of the pioneers only. The fourth squadron (the mounted guard), together with the guns, if any were present, would hasten to pursue the retiring enemy. The *led* horses would now

be brought up to the rear of the dismounted force, in which position they would probably be safe enough.

Half the scouts, however, would at once mount and get forward to support the pursuers, who would not, of course, be permitted to proceed to any great distance. As soon as these rallied, the scouts would assume their old station in front and take up the feel of the enemy, being themselves supported by the reformed pursuers.

The officer commanding would now be at liberty to make his dispositions for holding the ground he has fought for and won.

The third squadron, which having been entirely with the "main body" is probably the least disorganized, would first be marched back to the linked horses. They would mount their own and take charge of the remainder. The *led* horses would be guarded by the two sections till lately holding the horses of scouts now out in front.

At the disposal of the commander would remain half the scouts and three-fourths of the first and second squadrons, all dismounted. To these must be added the pioneers, who would trot up to the front as soon as the third squadron had got into their saddles.

This is one of the occasions in which the services of the pioneers would be especially valuable, for great exertions ought at once to be made to secure the advantage gained, and, by the rapid construction of shelter trenches and obstacles, so to strengthen the position or post as to be able to resist any efforts of the enemy to retake it. At this moment a good number of men, carrying tools and trained to their use, would be worth more than a reinforcement of several hundred sabres.

Besides providing cover for the defenders, the pioneers would also clear away the barricades and obstacles constructed by the enemy, temporarily repair broken bridges

or causeways, and generally open communications with the rear. A light cart with intrenching tools (which can travel anywhere where horse artillery can go) ought always to accompany any considerable body of cavalry. If this is now on the ground, a large number of men might be set to work, shelter trenches dug, walls loopholed, and *abattis*, etc., constructed on the side nearest the enemy.

With such artificial assistance, the 160 men (40 pioneers included) still remaining dismounted ought to be able to make a protracted resistance, even against a very superior force. The scouts' horses and their mounted guard would remain as near at hand as possible; for, should any of the enemy's cavalry make their appearance, the commander could, by simply ordering the scouts to mount, have at his disposal a force nearly equal to a squadron and a half.

The above arrangements being completed—the linked horses well in rear under a strong guard, and half the scouts, backed by the fourth squadron (or at least three-fourths of it), covering the front—the force might rest secure until the arrival of other troops would free the cavalry, and permit them to resume their proper and legitimate rôle.

It would very rarely happen that a larger amount of cavalry than a single regiment would take part in such an attack as is above described. If so, the additional squadrons might be most usefully employed in guarding the led and linked horses of the attackers, and in forming a (dismounted) reserve, answering to a battalion of the second line. It might be possible, also, for their scouts to make a diversion on the enemy's flank.

It is by no means to be supposed that the method of attack I have laid down would be closely or invariably adhered to. I have intended simply to convey an idea of what might be done by well-armed and properly organized cavalry under exceptional circumstances.

What will doubtless have struck the reader of the foregoing pages is the very small proportion of men, out of the total force present, that can be utilized for dismounted fighting at one and the same time. In the above attack we see that, even though the somewhat extreme measure of linking horses is resorted to, yet out of four squadrons, numbering altogether upwards of 500 sabres, only about 300 (including officers) would be actually engaged with the enemy.

Besides this, a good cavalry soldier is an expensive and never too common article, much more uncommon and much more costly than his infantry comrade. This would be especially true of the cavalry scouts. Really well-trained men of this class would be immensely valuable, not only to their own corps, but to the army at large; nevertheless, as it is on them that the brunt of an attack on foot would fall, they would naturally suffer the greatest losses.

This twofold waste of material is the inevitable consequence of using one arm to do work which properly belongs to another.

"A correct tactical action is one in which the powers and peculiarities of each arm of the service shall be developed to attain one object. A general looks on the different arms as instruments for attaining his object, precisely as a carpenter regards his tools; but no good carpenter would use his chisel as a saw, or his mallet as a hammer. . . . Any attempt to make these branches interchangeable, to make artillery work as cavalry, infantry as artillery or engineers, is to use a thing for a purpose it is not intended for—at all times a slow and costly practice, producing a minimum amount of result with a maximum of expenditure."

"Précis of
Modern
Tactics."
Major
Home,
R.E.

Not only is this the case, but with cavalry, we know

that it is certain ruin to their *morale* to employ them too frequently in fighting on foot.

For these reasons it becomes apparent that, in the present day, the formation of a certain number of battalions or corps of mounted infantry is almost a matter of necessity—not as a substitute for cavalry, as certain superficial reasoners and loose thinkers are fond of asserting, but to act as auxiliaries, and chiefly for the purpose of undertaking that particular sort of fighting for which they are, and cavalry are not, especially fitted.

The weak point of cavalry is inability to act on the defensive or maintain themselves in a position. But when associated with mounted infantry, the latter would in a great measure supply this deficiency, particularly if supported by the rifle-armed scouts. The cavalry, meanwhile, would take care of their horses, watch the flanks, and assist in the defence by well-timed attacks on the principles set forth in the first chapter. On the other hand, mounted infantry are powerless when on horseback; they must therefore be always accompanied by strong parties of cavalry, or they will, sooner or later, be cut up by that of the enemy.

Each arm, then, in turn assists and protects the other, to the increased efficiency of both.

When combined with cavalry, nearly all the infantry might safely be dismounted, since their horses would be guarded by the squadrons of cavalry. It is to be particularly noted, however, that they should in no way interfere with, or be called upon to perform, the duties which I have pointed out as the peculiar province of the cavalry scouts, who would still be always in front, examining the ground and reconnoitring the enemy. Only when the latter make a stand with fire-arms would the infantry dismount, go to the front, and engage them, supported by the scouts.

Or otherwise, these latter, utilizing the power of their horse, might seek the enemy's flank and attack from thence, while the infantry pressed them in front.

The saving of fatigue generally to the cavalry would be immense, for 100 mounted infantry and two squadrons would be able to do as much in a close country as four squadrons alone; indeed, one might well believe that they would be equal to six or eight squadrons of the present organization. Moreover, by keeping the horses of the cavalry tolerably fresh, they will be able to make extraordinary exertions on the day of battle. No fighting worth anything can be got out of cavalry who have been allowed to knock up their horses before they have gone into action.

The Defensive.

The real defensive will be but rarely forced upon dismounted cavalry. It might, indeed, be supposed that dismounted parties would be frequently on the defensive in resisting the encroachments of hostile cavalry in a close country—in such combats, in fact, as we have been considering in the previous pages. This, however, is not the case, for though the attack would be real enough, the defence, in almost every instance, must be of a “temporizing” nature; that is, with the idea of delaying and weakening the attackers rather than of resisting them to the very last.

This, of course, does not apply to the defence of posts, which are often ordered to be held as long as possible. Except, however, in retreats, it is seldom that these would be held by dismounted cavalry; and to whatever branch of the service the defenders might happen to belong, the defence would be conducted on principles more or less well known to every officer, and amply treated of in works of

far higher importance than these notes. It is therefore unnecessary to say more on the subject.

There is, however, one possible situation in which cavalry dismounted may have to assume the defensive, and that in its most positive form, and with the whole strength of the force at hand.

In pursuits it has for some time been well understood that the power of rapid motion possessed by cavalry can be best utilized against a retreating enemy by sending them in force to *head* his columns, and then, if they can find a strong position, to hold it dismounted, detaining the enemy until the main army coming up may compel him to fight an almost hopeless action, or to surrender on the spot.

The closing scene of the war of North and South America is a striking example of the power of a mounted force in this respect.* But it is evident that the operation is one for which a force composed of mounted infantry and cavalry combined is far more suitable (supposing any of the former to be in existence), than for cavalry alone.

Enterprises of this nature would never be undertaken, save by a body of considerable strength, comprising probably every mounted man and horse artillery gun that could be spared from the main army; yet the largest force of this nature that could possibly be collected is certain to be outnumbered, probably many times over, by the enemy whose progress they are endeavouring to arrest. It is therefore evident that not only is a naturally strong position imperative, but it must also be prepared, for the advantage of good cover is absolutely necessary to balance the inevitable disparity in numerical strength.

As the force would not intend to move from the position

* At the camp of exercise, near Delhi, in 1878, Colonel Sir F. W. Fitzwygram, 15th Hussars, at the head of a cavalry brigade, afforded an excellent illustration of the same principle.

it has taken up, but simply to maintain itself there to the last gasp, almost the whole of it might be dismounted and the horses picketed. Only a sufficient number of squadrons would remain mounted to watch the flanks and to act the part of divisional cavalry.

Between the defensive fighting of dismounted cavalry and that of infantry there cannot be any great difference. It must, however, be noted that the last stage of the defensive, which consists in an assumption of the offensive, is never to be entered upon; for the main object is not for the force itself to inflict defeat, but simply to hold the ground they are on, at all hazards and against all odds, until the pressure of the main army on the enemy causes them to surrender or disperse.

When troops are on the defensive, considerable strength is usually placed in the front line, since the attack ought, if possible, to be repelled before the last stage is reached; therefore the first line of defence—probably consisting of the ordinary shelter trench—would be held by at least half of the total strength, including the whole of the scouts, who, being the best armed, would be posted at the salients and such other points as might seem to invite attack. The front lines of squadrons would all be in the first or fighting line, and they would naturally be supported by their own rear lines. Some of these, however, would probably be withdrawn to form a last or main reserve, supposing this not to be formed separately, as might often be the case.

The supports would be in separate bodies of subdivisions or so, and would occupy shelter trenches at a distance of about 200 to 300 yards in rear of the first line, or less if possible. If natural cover can be obtained for the supports, so much the better, but they should always be in as perfect shelter as circumstances will admit of.

The main reserve, consisting of about one-fourth of

the whole, or somewhat less, is a most important body. Its function is to reinforce and strengthen those parts of the line where the pressure of the attack may be getting too much for the defenders. It would also be used to head and repel all attempts to turn the flanks.

It is evident that by the time the last reserve is expended, the power of resistance is nearly at an end; it should therefore be used with the utmost circumspection. If, however, the ground is favourable, the descent of the mounted squadrons upon the flanks of the enemy's attack would, even if not completely successful, be here of the greatest value, since by checking the assailants it would stave off the necessity of sending the last reserves into the firing line, and a defence is never hopeless so long as a reserve of some sort is left in hand. It is not to be supposed that the main reserves would be kept altogether in a mass, even where it is easier to get shelter for them in this condition than any other. Such a formation would prevent them from rendering that quick and ready assistance on either flank, or to any part of the fighting line, in which their main value lies. They would be divided into two or three separate bodies, at least, and in some cases might almost assume the appearance of a third line. Nevertheless, they would always be under the solé control of the commanding general himself.

The artillery occupies positions in rear of the first defensive line, over which it must have a command, to enable it to fire on the attackers. If command cannot be obtained, re-entering angles of the first line should be selected. Shelter is always required to the extent of an *epaulment* two feet three inches high in front of the guns. In great actions guns are always massed as much as possible; but under some conditions, as, for instance, that of a force such as we are now dealing with, defending a

defile, the guns would be wisely distributed over a considerable arc. The convergency, and therefore unity, of the fire would be decided by the smallness of the possible front of attack, and the scattering of the guns would partly save them from the destructive fire of the heavier and more numerous artillery of the enemy.

It is, however, the business of the commanding officer of artillery to assign posts to the units of his command; and the intentions of the commanding general having been explained to him, it is to be supposed that he will understand best how to get the greatest possible effect out of his own arm.

The choice of a position in which to fight must depend materially upon the strength at the disposal of the leader. Men in shelter trenches occupy two feet six inches space; and supposing these to be continuous, and that half the force would be in the first line, it would require 2400 actually dismounted men, or a total force of 3000, to occupy a position 1000 yards in length. This would be about the strength of a division of 16 squadrons on the proposed organization, including two batteries of horse artillery.

As the position would be taken up for purely defensive purposes, and with the intention of withstanding greatly superior numbers, the very first thing to be looked to is the security of the flanks, which should both be unassailable and incapable of being turned from a distance. A defile between hill-ridges, or between a mountain and a river or marsh, is almost the only sort of ground that will fulfil these conditions, and that not always perfectly. It is also impossible in such situations to use cavalry proper against the attack; but what might be a defect elsewhere is here quite counterbalanced by an immunity from the flank attacks of a superior enemy. Defiles of all descriptions should be defended from the nearest side, unless communication

through them is required. In mountain passes a stand, if not the principal defence, should be made behind the first angle, and the heights on either side should be occupied. In what are termed "strong" countries, considerable discretion has to be exercised, to avoid frittering away the available force by attempting to guard all the possible paths by which the enemy may approach. Those which lead round the flanks must, of course, be carefully watched, but anything tending to a dispersion of force is to be avoided.

If a Thermopylæ, as above, cannot be found, it is well to select such a position as will give the cavalry spirit full play; and this, as I have before pointed out, is compatible with the conditions most favourable for a good infantry defence. A low ridge, with a wood, perhaps, here and there, and smooth, gentle slopes in front, every yard of which may be covered by the defenders' bullets, is precisely the sort of ground where cavalry, by their attack in extended order, will be able to render the most effectual assistance to the dismounted holders of the position. But here, also, the flanks must be as secure as possible; and, however strong the front of the position, it will be untenable if there are not natural obstacles of some sort for them to rest on.

When carbine-armed men are contending with infantry, they should never be allowed to fire till the latter are well within range. It is trying to receive fire without returning it, but, if the men are kept close in the shelter trenches, they will suffer but little loss.

It is obvious that the pioneers would be of great assistance to any force that has to get itself under shelter. While the rank and file dig the trenches, the pioneers would prepare *abattis*, entanglements, and other quickly constructed obstacles; they would also aid in the con-

struction of gun-pits or emplacements. Walls, hedges, and banks might also be prepared and brought into the line of defence. The enemy's attack, and especially his natural attempt to gain the flank, might be greatly impeded by destroying the bridges of any small streams he may have to cross, scarping the bank at fords, blocking up the arches of a bridge so as to cause the water to inundate the road, felling trees across the roads, and generally destroying the ways by which he will have to advance.

The Temporizing Combat

Is, after all, that in which cavalry using fire-arms will find themselves most frequently engaged, and, it may be added, that for which their celerity of motion and the genius of the arm, no less than the smallness of the numbers available for fighting on foot, renders them most fit.

The pure offensive and the pure defensive are, indeed, exceptional attitudes for dismounted horsemen; unfortunately, they are sometimes forced upon us—more especially since there are no mounted infantry in existence—but, to borrow Major Home's simile, it is always like using a keen-edged axe to do the work of a ponderous sledge-hammer. The steady and determined attack on an enemy who *must* be ousted from his position, or the grim and desperate resistance which is forced upon any isolated body which has the temerity to throw itself across the path of a superior enemy, is work far more fitted for, and likely, therefore, to be far more efficiently performed by, trained infantry than by temporarily dismounted cavalry, whose armament, organization, teaching, and spirit are all directed towards other and very different objects.

This, however, can hardly be said of the "temporizing"

combat, which includes skirmishing of every description—on horseback as well as on foot—and particularly those partial and quickly broken off encounters which take place at outposts, during retreats, and at all times when cavalry divisions are “covering” the front or flank of an army in movement and in close proximity to the enemy. These affairs are in their intention, and therefore in their execution, very different from what we have hitherto been considering.

Von
Scherff,
“New
Tactics of
Infantry.”

“Feint, deceit, allurements, demonstration, are the life elements of this style of conflict, for which, perhaps, the *‘demonstrative’* will be a more suitable, comprehensive expression than the *temporizing* combat. But as now the power of striking and that of resistance are the only two strings of the instrument (the armed force), and as the offensive and defensive are the only two notes of its music (tactics) which are produced by these strings, nothing remains to the demonstrative but to use these notes in happy alternation.

“In order to be equal to this task, the fighting formation must needs be of a very flexible, mobile character—a formation which will accommodate itself easily and without friction to all circumstances, taking advantage of these if favourable, and if not so, avoiding the danger. . . .

“On the part of the soldier mobility, on the part of the officer, from highest to lowest, readiness to act on his own responsibility and decision, are qualities indispensable to success in these operations. . . . All these tasks are especially suited to well-armed cavalry and horse artillery, which have again in the last wars played so prominent a part as advanced and rear guard. May they, then, no longer stick at the *word*; the thing itself is of the very greatest importance, and its performance affords the most brilliant opportunities to genius, aptitude for war, and fitness for command.”

The formations I have proposed seem flexible and mobile enough for anything—it is only when attempting a serious attack that the want of solid reserves would be found a disadvantage. It is in this sort of warfare that it is particularly important to have the power, before alluded to, of breaking off the fight at pleasure. This power is possessed by all mounted troops fighting on foot, and in this one respect they have a decided advantage over ordinary infantry.

It is easy to see how an outnumbered or outflanked force might at first retreat towards their horses (who would be kept stationary under cover) in the ordinary way. The supports would first mount and rejoin the main body, which retires to some distance, leaving a squadron in position to assist in covering the last stage of the movement. When the fighting line of scouts have got to within 100 or 200 yards of the horses, they commence the heaviest possible fire from their repeating rifles, under cover of which the rear-line men run to their horses and gallop to the rear, rallying behind the squadron in position. The men till now holding their horses would rejoin their proper squadrons; the remaining dismounted scouts, still keeping up the fire, would only wait a sufficient time to let the others get fairly off, when they themselves would run in, mount, and, with the horse-leaders, make the best of their way to the main body, being covered by the squadron mentioned above, which, with its reinforcement of scouts, acts the part of rear-guard in the retreat.

If, however, the position unexpectedly becomes serious, and it is necessary to make an instant retreat to avoid being cut off, there is nothing for it but to gallop the horses up to the dismounted men, who would all mount and go to the rear at speed, protected as far as possible by the remainder of the regiment or force. This manœuvre might •

probably be practised without much danger when the scouts only are on foot; for their horses being better trained, and constantly accustomed to be led, would go anywhere at any pace, which can hardly be expected of the others. Nevertheless, it should be remembered that, with dismounted men, the fewer risks run the better.

Employment of Cavalry on Foot in Great Actions.

There will sometimes, though I think rarely, be found occasions when rifle-armed scouts * may be usefully employed on foot during an action on a large scale. They may, for instance, be used to impede the progress of an enemy threatening a flank, when a mounted attack is not practicable; also occasionally to fill up gaps in a line, etc., or to assist mounted infantry in a serious demonstration on the enemy's flank or rear. Against artillery, too; when the ground is broken and favourable for a skirmishing advance on foot (being proportionately unsuited for mounted work), the scouts may contrive to annoy artillery so much as to induce them to limber up and move off, when, if unsupported, a squadron, selecting its line of advance, might make a dash to carry off the guns.

It seems impossible to allow that dismounted cavalry should ever seek to fire on the mounted squadrons of the enemy. The sole exception to this is when the enemy's patrols are too inquisitive, or too sharp a pressure is put upon outposts or covering parties. There may then be circumstances which render it necessary to drive off the hostile cavalry by the fire of dismounted men. As a general rule, however, a cavalry soldier should think it *shame* to fire on those of the enemy.

* Please remember that I give the name "scouts" (for convenience sake) to a special class of men, as before described, who must not be confounded with scouts in the commonly understood sense of the word.

Let me say that this is no Quixotic or sentimental feeling. I believe that to permit cavalry to dismount and fire at an enemy of their own arm, instead of bravely meeting him man to man, is simply to destroy the *morale* and what I have termed the "true cavalry spirit" of the men, and to insure their defeat at the hands of any horsemen, however inferior naturally, who have not been trained on this plausible, but most pernicious, system.

Mounted infantry, accompanied by horse artillery and escorted by cavalry, might not unfrequently be employed with great effect in turning, by a great circuit, the flank of a position which is too well secured, by nature or art, to be assailable by infantry under ordinary conditions.

Outposts.—Advance and Rear Guards.

I should have been very glad if I could have avoided having to add anything to the vast amount which has already been written on this subject. The distribution and detail of outposts is pretty much an affair of common sense, guided, however, by a few broad principles, the intelligent application of which, and not the precise observance of forms, will give the best results.

Unfortunately, there is a tendency to lose sight of such principles in a multiplicity of directions for telling off and mounting the pickets, sending out reliefs, single and double patrols, etc., etc. Even the exact distance apart the men of a patrol are to ride has been carefully laid down. In fact, a complete system of drill, as formal as that in use for mounting ordinary guards in camp or garrison, is sought to be applied to outpost and picket duty.

I have no hesitation in saying that this tendency to introduce the exactitude of the parade ground into so different a field is bad, and defeats its own object; for all .

ranks thereby come to believe that, if only these ceremonies are gone through with conscientious precision, there is no more to be done. The spirit of the thing is sacrificed to the form. A patrol, for instance, going blundering along—the men thinking more of keeping distances than of looking out for indications of the enemy, with every ear and eye alert and devoted to that sole object—is not likely to do much good, and may instead come to grief. It is true that on service the instinct of self-preservation will, after a short time, awaken men to the necessity of using the senses which God has bestowed upon them; but who can tell what mischief may not in the mean time ensue, and why should we not do all that can be done in peace time to sharpen the intelligence of our soldiers, teach them to rely sometimes on their own resources, and endeavour generally to raise them above the level of machines, to that of thinking, reasoning men?

Outposts, as well as advanced and rear guards and flanking parties, are a contrivance for enabling the troops in general to march in safety without fear of being surprised by the enemy.

Both outposts and advance-guards are formed on the same principles, and are even convertible into one another. When a column on the march halts, its advance-guard, flanking parties, etc., become outposts; and on arrival at the camp or bivouac, these bodies actually take up, as far as possible, the positions to be occupied by the regular outposts, until relieved by the latter. Advanced and rear guards and flanking parties may then be considered as outposts in motion, and *vice versa*. The fact that one set of bodies is intended to be stationary and the other movable, causes those modifications in composition and detail which give them a different appearance, and leads to their being sometimes considered as of different natures.

The idea in both is to present to the enemy very small bodies thrown out to a great distance from the main force; these are supported by larger and larger detachments, capable of offering an increasing resistance to the enemy, and holding him in play, while the main body prepares itself to act as circumstances may dictate.

The conditions which outposts have to fulfil may be described in general terms as follows:—

- (1.) They must be able to watch strictly all the ground over which they are spread.
- (2.) Their component parts must be of such strength and so disposed as to be able to offer an increasing resistance to the enemy, and yield only to an advance in great force.
- (3.) The line of vedettes must be so far removed from the main body that, in the event of a sudden attack being made, the latter may have sufficient time to get under arms before the enemy can fall upon it.
- (4.) The duty being very fatiguing, only the smallest possible numbers of horses and men are to be employed. It is the absolute necessity for observing this rule that renders the perfect carrying out of the others difficult.

The outpost system we now practise, no doubt fulfils these conditions more or less perfectly; it has, nevertheless, certain defects which require to be noticed.

In the first place, it is very inconvenient and undesirable that a formed body should have to be totally disorganized and re-formed before it can be made available as a picket. The elaborate "telling-off" now required, which includes a fresh numbering of fours, takes time, and unfits the said body to resume its place in line until its original order is restored to it. Again, the practice of furnishing a number of vedettes from the same picket entails a con-

siderable amount of unnecessary fatigue upon the men and horses engaged. Suppose, for instance, a picket furnishes four vedettes, whose average distance apart is 500 yards, the flank vedettes being each 1000 yards from the picket; it is obvious that every horse in the picket will have to traverse, four times in the twenty-four hours, a distance of 3500 yards (altogether about eight miles) merely in carrying out the ordinary reliefs. And when we remember the trying nature of the duty under any circumstances—that the horses have always to bear the weight of their riders for eight hours out of the twenty-four, that they are never relieved of the saddle and kit, itself weighing nine or ten stone, and also the hardships which are inseparable from duties of this nature—it would seem that any disposition which dispensed with the necessity for traversing so great a distance at every relief, must be possessed of at least one great advantage. Moreover, the pickets being often a great distance from one another, it is no easy matter, particularly at night, for them to communicate, and if attacked they are seldom able to afford mutual assistance. This evil is severely felt in an inclosed or difficult country. It is therefore evident that the system is not well adapted to all sorts of ground. It is also complicated, requiring examining parties and other detachments from the pickets for certain objects, a further proof of its unadaptability to all purposes.

These defects are not slight, but it would be impossible to remedy them perfectly with the existing formations. Under the system, however, which I have sketched at pages 120 to 125, these imperfections might be avoided, if not entirely, at all events to a very great extent.

My readers will remember that a squadron is supposed to be in two lines, instead of two ranks, each line being divided into four sections of from eight to twelve horses, led

by a senior non-commanding officer; the scouts, equal to one-fifth of the whole, being distributed in the *serre-file* ranks. It is customary on service to send entire troops, or squadrons, or even regiments, on outpost as they stand. Instead, however, of breaking up the bodies detailed for duty into pickets of various sizes, with the above organization it would only be requisite, on arriving in the neighbourhood of the ground to be occupied, to direct the sections of the leading line to the front, and to place them as a line of detached posts, each furnishing a double *vedette*. The number of sections so placed, would, of course, be the same as the number of *vedettes* necessary to watch the ground. The remainder of the squadron, following its natural *rôle*, would take up a position supporting its first line. The operation would be effectively covered by the scouts, who would spread themselves over and examine the country beyond the intended line of *vedettes*, until all the posts had been properly established.

This scheme would entirely obviate the inconvenience which arises from the necessity, under the present organization, of disturbing the order in which the men are accustomed to manœuvre and fight.

Each post having only to relieve its one *vedette*, the horses would be saved the unnecessary work which is now entailed upon them, of having to go a long round at every relief; also, the communicating patrols would only have to go to the neighbouring posts, which are comparatively a very short distance off.

The system is adapted to any sort of ground. In a close country each *vedette* is well supported, and communication is greatly facilitated.

The posts have more natural coherence than the present pickets, which are stronger, but necessarily placed at a great distance apart. When driven in, the detached sec-

tions would unite readily, and a continually increasing front be shown to the enemy from the first. The normal formation not being interfered with, all the various bodies would fall at once into their own places, and would be ready to fight or manœuvre to the greatest advantage.

Lastly, the whole arrangement of the outposts is more simple, no examining parties or other detachments for special purposes being required.

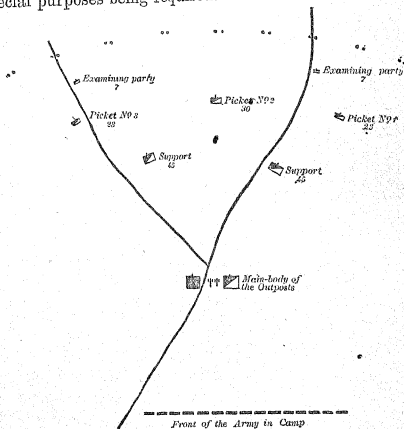


FIG. 11.

It may, however, seem, at first glance, that the above system is more expensive in men and horses than the one now practised. But this is not the case, at least to any serious extent; and even should it be so, the greatly decreased fatigue in carrying out the duty would very much outweigh the disadvantage of a slight increase in numbers.

The comparative value of the two systems will be more clearly understood by a reference to the skeleton sketches annexed. In these I have supposed a portion of country about three miles wide to be watched by nine vedettes. Fig. 11 represents the present system. The vedettes are

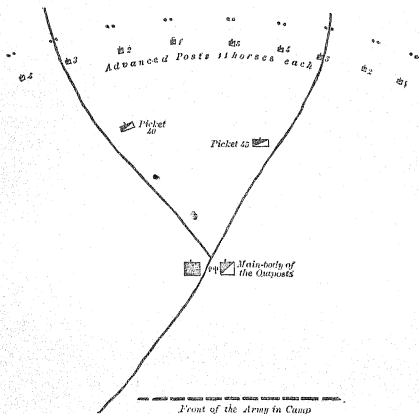


FIG. 12.

furnished by three pickets of 30 horses each, detail as under :—

| | | |
|---|---|------------|
| Three reliefs for three double vedettes ... | = | 18 horses. |
| Ditto single sentry | = | 3 " |
| For patrolling | = | 5 " |
| Non-commissioned officers | = | 3 " |
| Officer commanding picket | = | 1 " |
| | | <hr/> |
| | | 30 " |

These are supported by two troops of 45 horses each. There are also two examining parties of seven horses each, furnished from the pickets. Fig. 12 represents the same .

number of vedettes, each thrown out from a separate advanced post ; the advanced posts being sections averaging 10 horses each, or 11 including the leader :—

| | | | |
|-------------------------------------|---------------|--------|-----------|
| Three reliefs for double vedette | | = | 6 horses. |
| Ditto | single sentry | | = 3 „ |
| Non-commissioned officer (corporal) | | = | 1 „ |
| Commander of post (sergeant) | | = | 1 „ |
| | | | <hr/> |
| | | | 11 „ |

The five on the right are furnished by one squadron, a section from the rear line being taken for the fifth post. The remainder of the squadron, less one section, supports the posts, under the command of the squadron leader, forming a picket of about 45 horses. The four advanced posts on the left are the front line of another squadron ; they are supported by a picket, consisting of a subdivision, with its scouts supplemented by all the scouts of the first line. Its strength would be 40 horses. The odd subdivision not being required returns to camp.

The arrangement in Fig. 11 may appear more symmetrical on paper, but the enormous difference in the distances which have to be traversed by the reliefs, visiting patrols, etc., is very apparent, as is also the closer connection between the various bodies forming the outposts ; and this would appear fully to compensate for the slight increase (14 *) in the number of horses employed.

I may also remark that the system proposed, so far from being a novelty, is, in principle, about the oldest in existence, and it is that which appears to be naturally adopted by all irregular—that is to say, uninstructed cavalries. That now generally in use has no doubt been created by the desire to make as great a saving as possible in the number of men and horses employed, but this saving

* Or 7·77 per cent.

appears to be out of all proportion to the extra exertions thereby required from those actually on picket. In other respects there does not appear to be any improvement on the primitive and more simple system.

Vedettes.

It is evident that, under all systems, the whole of the outpost arrangements are dependent on the number and disposition of the vedettes. These must, of course, be as few as possible, provided they can between them see, in the daytime, all the ground over which anything must pass to get within the line. Each vedette must also see those immediately to their right and left. If this entails the employment of excessive numbers, the alternative is to post the vedettes single. Single vedettes, however, have many disadvantages compared with double vedettes, more especially at night, when vedettes should always be double, if possible.

During the daytime vedettes occupy points from which a good outlook can be obtained, but they themselves should be hidden as much as possible. A miserable-looking bush or sapling will sometimes afford tolerable cover; for outlines become blended at a distance, and it is difficult to make out even so large an animal as a horse, which might be perfectly visible if entirely in the open.

At night it is customary to bring in the vedettes some little distance, and to post them on lower ground, in order that anything approaching them may show against the sky. Since the line of vedettes is nearly always a convex arc, retiring them at night will bring them closer together, which is an additional advantage. Captain Clery's idea is to push vedettes and pickets entries forward at night on to the lower ground. This, however, though of course

advantageous if practicable, could seldom be managed, on account of the increased number of vedettes or sentries that would inevitably become necessary.

The usual rules for the conduct of vedettes when on their post are well known to every officer. It must be remembered that their primary duty is to keep the most vigilant outlook over the whole of the ground in front, and to note every occurrence, however trivial, that takes place within their range of vision, anything for which they cannot assign a cause being reported. Some signal should be arranged by which a vedette can call up to him the commander of the post, without making a noise or attracting attention from outside.

The Advanced Posts.

The number and position of the vedettes determines, within certain limits, that of the advanced posts. The latter should, if possible, be concealed from the view of any one coming from the front, but must be able to move freely in any direction. Each post should be distant from its vedette about 250 to 350 yards, and not exactly in rear, but somewhat to a flank.

As soon as the vedette is posted, which would usually be done under the superintendence of the squadron leader, or perhaps under that of the officer commanding the outposts, the commander of the post would select his position; and having fixed on that, would proceed to make the further arrangements necessary for carrying on the duty, *i.e.*, telling off the reliefs for the vedette and single sentry, always having regard in doing so to the character and peculiarities of the individual men under his command. It is evident that a steady non-commissioned officer, as the commander of an advanced post would be, can, from his

intimate knowledge of the men, make the best possible use of his material in this respect.

A single sentry, either mounted or dismounted, watches over the post and also observes the vedette. These sentries are not without their value in the general scheme. Being as numerous as the vedettes themselves, and never exactly in rear of them, they would form a sort of second line, and doubly guard the ground between the posts. At night and in bad weather, when vision becomes limited, it is not uncommon for unauthorized individuals (often spies) to slip through the vedettes and evade the patrols. Such people would be frequently stopped by the single sentries, of whose position they would generally be ignorant until challenged.

Although the rule that each advanced post consists of one section furnishing one double vedette is the basis of the system, yet it is not intended that it should be invariably adhered to under all circumstances. It will sometimes be advisable to unite two sections into one post giving two vedettes.* This will constantly be done when the sections are under the average strength of ten (or, including the leader, eleven) horses, and a saving of three will be effected in each instance, at the cost, however, of giving additional work to all. If this is not done, it will be necessary to fill up the section from the second line, the picket, or from the main body, to a strength of nine or ten horses each. By forming the advanced posts of subdivisions, and making use of single vedettes only, it will be possible to cover a very large extent of ground with weak numbers, but of course the horses would be proportionately hard worked.

It is always the duty of the commander of a picket or

* That is to say, the first line will break up into subdivisions instead of sections.

advanced post to make himself acquainted with the exact position of similar bodies on his right and left, and the shortest paths by which they can be reached; he must maintain communication with them by patrols. Commanders of posts are also answerable for the constant examination of such ground, in the immediate vicinity of their posts, as cannot be overlooked by the vedettes. This is also done by patrols from the post; it is absolutely necessary, but, in some countries, by no means light work. Unnecessary work, however, having been got rid of, it will be possible to do it thoroughly without unduly fatiguing the horses.

Bodies which support the Advanced Posts.

Each group of advanced posts would be supported, according to circumstances, by the whole or a portion of the remainder of the squadron to which the sections belong. This support, the main body of the squadron, would be called "the picket," and commanded by the squadron leader, who is also responsible for all his detachments in front.

Besides its own proportion of scouts, the picket would have united to it all the scouts belonging to the sections forming the advanced posts. This not only contributes to the strength of the picket, but the squadron leader will be able, by having so many of the scouts together, to carry on distant patrolling in a very extensive and systematic manner. In the event of the outposts being forced to retire before superior numbers, the scouts would go to the front and skirmish with the enemy, while the various detachments gradually united themselves as they retreated. In the case of a night attack, the picket, being largely composed of rifle-armed men accustomed to fight on foot, would be able to hold its ground for some time, allowing

the advanced posts to rally in rear of it. Night positions would be chosen with a view to making a stand dismounted, and the squadron pioneers might be employed in preparing them for that purpose.

Squadrons should be sent on outpost as much as possible entire—so much ground, according to the nature of the country, being assigned to each squadron, or portion of one, forming a distinct picket; and its leader should be left to make his own arrangements, both for day and night, with the men at his disposal, subject, of course, to the inspection and approval of the officer commanding the outposts, who alone will decide if any and what reinforcements are necessary*.

The squadron pioneers, of whom mention has already been made, would always be extremely useful in making and improving communications, preparing the right position of the picket, and constructing, occasionally, rough shelter for the men in bad weather. They would commonly join the picket after the latter had established itself on its post, and would be permitted to return to camp when their services were no longer required. Being, however, effective soldiers, as good as any in the squadron, they will always be available for the ordinary duties of the picket when there was a scarcity of men.

Posts of Observation

Should be placed on any commanding elevation—church-tower, etc.—from which a good view for a great distance can be obtained. Such places are often of great value. A couple of intelligent non-commissioned officers may be used as observers, and they should be furnished with a telescope.

The elevation which is thus made use of may be either •

within or without the line of vedettes. If a really good one, it may be possible to do away with a post or two ; but in this case, and always when beyond the chain of vedettes, a party must be stationed close at hand, to support the post and also to intercept and examine suspicious persons, waggons, etc., and otherwise to act as may be expedient. Constant communication must be maintained with a post of observation when it is an exposed situation, and at night it will always be withdrawn to resume its place at daybreak.

The Main Body of the Outposts.

This is a considerable force, generally composed of all the arms combined, and answers nearly to the "main body" of the advance-guard of an army, as distinguished from the "vanguard." It is interposed between the main body of an army and the outposts proper, for the double purpose of permitting the latter to be pushed out further than would otherwise be safe, and also because, being itself held in a state of preparation, it can quickly offer a solid resistance to an attacking enemy, delaying him sufficiently long to enable the army to prepare itself for action.

With a large army there will probably be several of these bodies thrown out by the divisions or brigades that have been covering the march. Their composition and disposition vary greatly according to circumstances, and do not come within the scope of our present observations. With a large cavalry force, however, acting independently, there might be a "main body of the outposts," composed, perhaps, of from two to four squadrons, with half a battery of horse artillery. Something of the kind would always be required if the line of outposts lay on the other side

of a natural obstacle, as a river or ridge of hill, the line of communication through which was a bridge or defile.

If mounted infantry formed part of the cavalry force, they would here be very advantageously employed.

Distant Patrolling and Scouting.

However vigilant, however admirably posted the vedettes may be, yet they can only perform, and that imperfectly, a negative part in the great work of securing the army from surprise.

“A line of stationary sentries may so far guard against surprise that the enemy cannot pass into the position without being observed; but it is in the discovery of his approach and the searching out of his movements beforehand that true security must be looked for.”

Clery,
“Minor
Tactics.”

No system of outposts can insure safety to an army unless constant and intelligent patrolling is made to play a principal part in it. If the patrols do not find out the enemy's intentions until he himself chooses to reveal them, a bold and well-planned attack may drive all our carefully placed outposts in wild confusion into the startled camp, and the enemy's squadrons, following close on their heels, may succeed in effecting a very complete and disastrous surprise.

It is, in fact, to be understood that the outpost system itself is but a basis or framework for the important business of patrolling.

Distant patrolling, or scouting, and reconnaissances, as distinguished from patrols of communication and the examination of ground in the immediate vicinity of the posts, will invariably be undertaken by the scouts, who, as I have already explained, are united to the picket and

under the immediate control of the officer who commands it.

It is evident that the scouts, being originally selected for their intelligence, mounted on picked horses, and trained and armed with a special view to the performance of duties of this nature, and, what is of equal importance, being constantly practised in the same, will be of far greater value than any soldiers, however well qualified naturally, who, taken from the ranks as required, have had no special training or practice.

The number of regular scouts would be amply sufficient for all purposes. In dangerous scouting two good men are better than twenty ordinary troopers. If larger parties are a necessity, the bulk of them can be taken from the rank and file; as, for instance, a section with its own scouts attached, the latter doing the essential part of the work. Distant patrols and scouting parties should be frequently led by officers, whose superior education and intelligence is as valuable here, as in the actual commanding of the troops. Officers not being required to take charge of advanced posts, there will always be a good number available for the conduct of these delicate operations.

Advance and Rear Guards, etc.

The function of the auxiliary arms, cavalry and artillery, is essentially that of advance-guard. But, while the latter, though marching as much as possible at the head of the columns, does not become of service until the enemy is met with in force, the divisions of the former are continually employed in scouring the country as far as possible ahead of the army, their rearmost brigade being usually not less than a day's march in front of the infantry.

The duty of the cavalry is to explore the country, to

seek out the enemy and maintain the touch, and their use in this respect only ceases when that of the artillery begins—that is, at the commencement of an action. The divisional cavalry forms part of the advance-guards of the columns to which it belongs, and it is always charged with the duty of maintaining the communication between them.

The disposition of the cavalry divisions covering an advance is on the same principles as that of outposts: very small bodies, with a fringe of scouts, being pushed well to the front, these supported by the main bodies of the squadrons from which they are detached, and the whole backed up by reserves, which follow on the roads, holding themselves in readiness to fall on the enemy's cavalry, should the latter attempt to force the line of the most advanced parties.

On halting for the night, the advanced parties naturally become outposts, the squadrons which furnish them being relieved every twenty-four hours.

Suppose, for instance, a division had two brigades, each of eight squadrons. The leading brigade would have its regiments separated, each regiment supplying about two squadrons for the extreme advance. The whole four squadrons would cover about four to eight miles of country. The remaining two squadrons of each regiment would be held in reserve, the advance and reserve squadrons relieving each other daily. The rear brigade, with the horse artillery attached to the division, forms a reserve to the whole, its relative position and distance being regulated according to circumstances. The brigades would, if possible, exchange places every forty-eight hours.

To advanced bodies of cavalry is usually intrusted the work of collecting supplies of all kinds for the masses which they precede, when the latter are not fed from magazines in rear. Even when this is the case, there are

some articles, like forage, that must be obtained from the country in which the troops are operating. In order that such may be collected methodically and without waste, officers of the supply departments should be detailed to accompany the cavalry.

The divisions themselves must always be totally independent of the commissariat for their supplies, and should feed themselves as much as possible by a system of "requisitions." If the country is a very poor one, the commissariat may be called in to assist, but the cavalry divisions must never be made dependent on the same line of supply which feeds the infantry columns. If this is done, as was the case with the French in 1870, the cavalry will be tied to the infantry and their activity paralyzed. Then, indeed, they will be an incumbrance instead of an assistance to the army. As the cavalry divisions, however, are usually spread over a great extent of country, they will not, under proper arrangements, have much difficulty in obtaining subsistence. The Prussian cavalry, so far from being a clog on the Intendance, rendered it great services.

So much has to be done by the cavalry divisions covering an army, and so much depends on its being done properly, that it would be easy to write volumes on the subject. Happily, however, it has already been handled by one of the first military writers of the day—Colonel Von Verdy du Vernois, already well known to us by his admirable work, "Studies in Troop Leading." His latest work on the "cavalry division" will, no doubt, be read with great interest by all officers.

Although the presence of the cavalry divisions in front affords a general security to the army, yet the ordinary precaution of throwing out a regular advance-guard of its own is on no account to be neglected by any

column or detachment of troops. Thus the rearmost brigades of advanced cavalry divisions would invariably be preceded by proper advance-guards; only in this case the advance-guards need not be so strong, or be pushed so far to the front, as if they were actually nearer to the enemy than any other portion of the force.

Modifications in infantry tactics have caused the advance-guards of that arm to be much stronger than was formerly the case. That of a considerable force is often not less than one-fourth of the whole, and it is composed of all the arms combined, including always some squadrons of the divisional cavalry. These strong advanced-guards have a secondary advance-guard of their own, called "the vanguard."

For a purely mounted force,* however, a powerful advance-guard is seldom required, since they possess the advantage of being able to observe the ground to a considerable distance in front and flank with comparatively small numbers. Cavalry, also, are not required to stand on the defensive in presence of superior forces, holding the ground while the main body is being deployed, as the advanced-guards of infantry columns have frequently to do. The scouts and feelers of cavalry on the march will take care that the main body is not attacked by superior numbers of their own arm without due warning; and if strongly posted bodies of infantry are encountered, the combat must either be declined or, under some circumstances, be undertaken on foot, as previously set forth.

For a large column of cavalry marching on a road, an advance-guard of one squadron will generally be sufficient—half that number being enough for any body less

* When concerned only with its own safety. Cavalry divisions covering an army may often make large detachments, which are called advance-guards, but are in reality *points d'appui* for the numerous patrols and reconnoitring parties which they send out.

than a full brigade of eight squadrons. This is exclusive of pioneers, some of whom would always form an integral

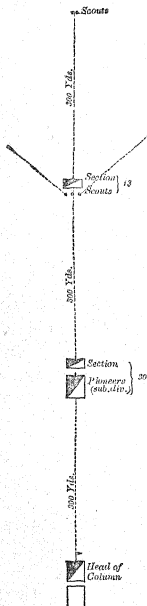


FIG. 13.

part of the advance-guard. Fig. 13 represents what would be the ordinary advance-guard of a regiment marching on a road. Its total strength is a subdivision of the first line of the leading squadron, and half the pioneers of the regiment; equal to another subdivision. One section and the subdivision (or two sections) of pioneers would be 300 yards in advance of the head of the column; the other section, with the scouts of both, being pushed on another 300 yards. This section sends two or three scouts 300 yards ahead. The scouts remaining with the section would examine places near the road where an enemy might be concealed. If there was much of this work, they would be reinforced by other scouts from the leading squadron, and also by those from squadrons in rear, if necessary. When the nature of the country admitted of it, the scouts of the advance-guard would ride in front, extended in line, with intervals of one to two hundred yards.

Flanking parties would not be required; the flanks being sufficiently

secured by throwing out scouts, more or less numerous according to circumstances, and supporting them by detached sections. Patrols may also be formed out of the scouts of a section or subdivision acting together under a non-com-

missioned officer. Scouts not being in the ranks can easily be detached, without disturbing the order of the columns, to examine woods, villages, etc., in the neighbourhood of the line of march.

Rear-guards are usually formed like advance-guards reversed. Of course, there is a considerable difference between the rear-guard of an advancing force and a rear-guard during a retreat in presence of the enemy. In the latter case, pioneers should always form part of the rear-guard, in order that impediments may be thrown in the way of the enemy's march, by breaking down bridges, etc.

The cavalry divisions must, of course, be equally employed in keeping touch with the enemy when the latter is in the rear, as when he is in front of the army. They have also to be particularly watchful with regard to the flanks. But the use of cavalry in rear of an army is by no means so general as in covering the advance. The country has not to be explored in the same manner, nor have supplies to be collected; therefore, unless the enemy be very distant, a great force of cavalry is unnecessary, and may even become dangerous; for, should a mass of cavalry following a column of infantry and artillery along a road be seized with a panic—to which, it must be confessed, it is of all arms the most liable—they may in a few moments do more mischief than all the efforts of the enemy would be able to effect.

Pursuits and Retreats.

When an army, beaten in a great battle, seeks to escape from a contest which can only be continued to its disadvantage, or when an inferior force hastens away before an enemy with whom it cannot hope to contend success-

fully, there commonly follows, on the part of the superior or victorious army, what is called a "pursuit."

In either case the object of the pursuer is to overtake the defeated or weak enemy, and by his superior force to crush him utterly before he can gain a place of safety, or has time to restore order, and with it confidence, to his disorganized troops.

On both sides the cavalry may be conspicuous. Being more rapid in movement than the other arms, the stronger despatches it to overtake and ride down the retiring battalions and batteries of the weaker, who might otherwise escape from his own infantry and artillery; and when an enemy is much disordered and dispirited, cavalry has often produced a terrible effect. The panic that appears to seize all foot soldiers, even the bravest, if disordered and a cry of "cavalry" is raised, is surprising when we think of the contempt the same men are said to feel for cavalry in battle. On the other side, the cavalry will interpose, and if necessary sacrifice itself, to save the broken infantry from destruction.

It is true that the introduction of the breech-loader has given an inherent defensive power to all infantry, even when thoroughly beaten, provided only that they are under some sort of control. On the other hand, it must be acknowledged that the strain on men's minds and bodies during a serious combat is so severe, and so great is the effect of the enormous losses necessarily incurred, that all infantry, even though they may have defended themselves bravely up to the last moment, become extraordinarily demoralized the moment fortune has declared against them.

This was sufficiently exemplified by the conduct of the French in 1870. All historians of the war have noted how on many occasions, and after fighting with distinguished bravery, they fled in the most disorderly manner imme-

diately the moment arrived for abandoning their positions. In no case did the troops actually worsted, although their losses were seldom greater than those of their opponents, appear capable of retiring in good order, or showing front to the enemy. Such a state of things cannot wholly be attributed to a want of discipline.*

An eye-witness † has described how, on the evening of the 18th August, a counter-attack of the French on the Prussian 8th Corps produced a perfect panic, which all the efforts of their officers were unable to allay or control. The opportune presence of the king in person in this part of the field, as well as the arrival of the 2nd Corps, added to the fact that the French did not follow up their advantage, here restored the fight; but the writer particularly remarks that "the words, 'The French cavalry are coming,' were on every Prussian's lips." ‡ Unfortunately for the French, their cavalry was not in a position to take advantage of the opportunity thus afforded them. The attack of even a few squadrons of divisional cavalry at such a moment might well be expected to produce the most important results.

The *déroute* of infantry driven from their positions, or vigorously repulsed by a counter-attack, is always more

* It is probably a natural consequence of the extended and individual method of fighting now rendered necessary.

† The Hon. C. Allanson Winn, author of "What I saw of the War." See page 104, battle of Gorze (Mars la Tour).

‡ This statement is supported by the account given of the battle of Gravelotte in Captain Hoffbauer's work, "The German Artillery":—"When, therefore, the stillness was broken by the renewed firing, and swarms of tirailleurs advanced from Ponts du Jour and Mousson, the foremost men fell back, carrying with them those in rear; while the panic increased in proportion to the distance from the supposed danger. . . . Even when the mass of stragglers rushed towards the battery, Captain Gnügge preserved an unshaken calmness, and endeavoured to restore 'order out of chaos.' Vain attempt! The mighty stream could not be checked, but poured through the battery, where it was overwhelmed by the enemy's fire, and men and horses were crushed together. Captain Gnügge, utterly powerless, saw part of his battery swept away in the general confusion," etc.

complete than was formerly the case; nevertheless, if good, well-disciplined troops, it is to be expected that, after having been but a short time out of fire, they will begin to recover themselves, and attend once more to the word of command. Then, if unmolested, they will rally, and, if reassured by the presence of fresh battalions, they may again be led to the scene of action.

It is the business of cavalry to prevent this. The victorious infantry, themselves greatly disordered, cannot be allowed to pursue; it takes time to bring up the battalions in reserve, and they are, besides, better employed in holding fast the ground already gained. But an attack of cavalry, or even their mere appearance, will render any getting together of the beaten troops a hopeless affair; and if the horsemen are equal to the occasion, there is every chance of any fresh reserves that may be present being involved in the general confusion. Then, if the enemy's squadrons are absent, weak in numbers, or deficient in courage and devotion, the rout will be complete, and the pursuers may revel in slaughter.

Much depends upon cavalry being at hand to take advantage of the happy moment. If so, there should be no hesitation; it is the moment of all others for decisive action. The attack can be made in extended order, and with the utmost confidence.

This period, however, belongs rather to the battle itself than to the pursuit, which is properly understood to mean the following up of the enemy after he has abandoned the contest and withdrawn altogether from the field of battle. With reference to this, it may be noted that in none of the actions in the late war in France do we find that the pursuit was very earnestly pressed by cavalry. In some instances, no doubt, as in the battles round Metz, this was due to the peculiar situation, and after Sedan the Prus-

sians had no enemy left to pursue; but may it not also be the case that the dread effect of infantry fire on cavalry, in its present formations, is now so well established that no general thinks himself justified in risking his cavalry against infantry, even when beaten, disorganized, and in full retreat, unless it is a matter of absolute necessity, by which forbearance many advantages are voluntarily abandoned? The adoption of a more rational form and mode of attack will probably allow of cavalry being again used in a manner which has always been deemed its special vocation—that is, in the active pursuit of a defeated enemy.

An army must, however, be very badly beaten if their general cannot after a time get together a sufficient force from his reserves to form a rear-guard, and check the eager onslaught of the victors. A rear-guard is always mainly composed of infantry, and it covers the retreat of the army by taking up successive defensive positions, which are, of course, unassailable by cavalry. The latter are then brought to a standstill, and are obliged to wait for their infantry to come up. Occasionally, but very rarely, will it be proper for the cavalry leader to attempt to force some point by a dismounted attack. We may conclude that when the enemy has succeeded in forming a tolerable rear-guard (and in a retreat in good order this will be the case from the first), the direct action of cavalry in pursuit has come to an end.

Whether, however, the object of pursuit is a beaten army, or an inferior force retiring without having risked an engagement, it is equally the aim of the pursuing force to bring their enemy to action as quickly as possible; and it is evident that this may be done far more effectually, and with less risk, by heading him, or even by cutting in on his flanks, than by hammering away at his rear, where a

skilfully handled rear-guard of moderate strength may, in a country of good positions, easily baffle the whole cavalry of an army.

When the available mounted force is sufficiently numerous, and if some defensible point commanding the route taken by the enemy can be seized, the former plan will be adopted, provided always that the main army, or at least a sufficient portion of it, is in a position to be brought to bear quickly upon the flank or rear of the force whose march is being arrested. To neglect this is only to court destruction. The co-operation of the main body must be assured, or the enterprise will fail disastrously. The question, however, is one of strategical rather than tactical considerations, and so many circumstances must combine to render success certain, that the scene at Appomatox Courthouse is not likely to be often repeated, at least on a large scale.

On the other hand, a considerable mounted force, skilfully used, will always be able to do a great deal in the way of retarding, when they cannot arrest, the march of an enemy whom it is desired to overtake. Even if it should not be possible to destroy in advance the bridges over which he may desire to pass his troops, and to create other mechanical hindrances of a like nature, the mere appearance of hostile cavalry in front and on the flanks of the columns on the line of march, will have a great effect on the *morale* and bearing of the soldiers. Serious delay and annoyance may also be caused by constant petty combats of the "temporizing" fashion, by demonstrations on the flanks, and skirmishes with fire-arms, which may be engaged in by dismounted men with considerable confidence, from the power they possess of getting away at pleasure. Downright dashes at the columns, particularly at artillery and waggon trains, can also be made at favour-

able moments. In all these the horse artillery will play an important, sometimes the principal, part.

This sort of Cossack warfare has often proved most destructive in its results; but it cannot well be practised when the opposing cavalry are numerous and good. If these know their duty, and have not knocked up their horses, they will prevent the hostile squadrons from doing very much harm. The first task of the latter, then, is to encompass the destruction of the cavalry opposed to them, and they should lose no opportunity of drawing them into destructive combats, endeavouring to lure them to a distance from their infantry and fall upon them with superior numbers.

A retreating force, whose cavalry is much weaker than that which the enemy can bring against it, is liable to be incessantly harassed, wearied by continual alarms, threatened with the loss of its baggage, and sometimes even cut off from its supplies.

The mass of the cavalry belonging to a defeated or retiring army would not, after stemming the first rush of the enemy's horse in pursuit, be employed in rear of the columns for reasons before mentioned. The duty of the cavalry divisions is clearly to protect the *flanks* of the line of march and prevent the enemy from penetrating between the columns, or from heading them by throwing rapidly forward a mounted force. Sufficient cavalry for rear-guard purposes can always be supplied from the regiments attached to divisions, and being more closely associated with the infantry, they will be likely to work with them better than detachments from the cavalry divisions.

Scouts, however, would be freely employed; and if there were no mounted infantry, it would often be advisable to augment those of the few squadrons on rear-guard by as

many others as can be spared elsewhere. This is almost the only case in which such a proceeding would be justifiable, since there is always plenty of work for scouts with their own squadrons.

The main body of a rear-guard in front of an enemy will probably always consist of infantry, as they are necessary in order to give due solidity to the resistance which may have to be offered to the pursuing forces from time to time. But the very great value of trained scouts and mounted infantry in the "temporizing" actions in which rear-guards have constantly to engage has already been pointed out. They will often be able to maintain their ground and offer resistance long after it has become necessary to withdraw the infantry. Nor will opportunities for the true action of cavalry be wanting, in the shape of extended-order attacks on the enemy's infantry engaged with the rear-guard battalions. Cavalry are, however, too valuable to an outnumbered or beaten army to be lightly risked in this manner, unless the retreat of the rear-guard appeared to be compromised, or the temerity of the pursuers caused them to lay themselves unusually open to a counterstroke of this nature.

The services of the cavalry pioneers would perhaps be more desired during a hard-pressed retreat than under any other circumstances. There is always much to be done in the way of preparing places for defence, which can be well enough accomplished by a detachment of sappers; but there is another class of work—the destruction of bridges, etc.—which has often to be delayed until the last moment, and which cavalry pioneers, from the rapidity with which they can retreat, are particularly calculated to perform.

Raids.

This term may be applied to all expeditions made by bodies of cavalry, or mounted troops, into the country occupied or overrun by the enemy for a specific object. This object is almost invariably connected in some way with the enemy's communications. Wanton incursions, made for no other purpose than to harry and alarm the peaceable inhabitants of a district, form no part of modern warfare.

Exceptional objects of a raid are—to cut off isolated detachments of hostile troops, and to carry off cattle or supplies of food from an ill-defended part of the enemy's territory. The latter is only to be resorted to in cases of necessity, since it is apt to degenerate into mere plundering.

Although raids are totally different affairs from reconnaissances, yet they incidentally furnish valuable items of information. As with reconnoitring parties, detachments on raiding expeditions do not fight, unless their object cannot be attained without it, or to make good their retreat.

Raids directed against lines of communication may have for their special object, either the capture of material (which is then destroyed or carried off, according to circumstances), as the seizure of a convoy or train, or the destruction of a depôt of supplies; or the interruption of the line of communication itself, which may have to be effected by breaking a bridge, tearing up a line of rail, burning stations and rolling stock, cutting telegraphic wires, etc.

If war is being made in a civilized country, parties of cavalry will be continually employed in severing the lines of telegraphic and railway communication which are, or may be, used by the enemy.

In order to be really efficient at such work, the cavalry must not only be provided with regular trained pioneers, but should also be carefully instructed in peace time in this particular branch of the art of destruction.

The German cavalry in the war of 1870, and that of the Austrians in 1866, was freely used to destroy (sometimes also to repair) railroads, telegraphs, and bridges. But for the most important and daring exploits in this line, we must turn to the war of North and South in America. I regret that space will not allow of my giving examples of American skill and audacity in raiding.

The strength of detachments thus employed will depend principally on the nature of the work to be done and the probabilities of resistance being offered. Very weak parties are to be deprecated, because, being for the time entirely cut off from succour and assistance, they would be too easily overpowered if they chanced to meet with the enemy's troops. On the other hand, it would be impossible to march with the necessary rapidity and secrecy, if the detachment was too large. A strength equal to from half a squadron to two squadrons appears to be sufficient for most purposes.

If the raid was an important one, the men and horses might be picked, though it is not a good principle; and whenever demolitions of any sort are proposed, at least one-eighth of the whole should be pioneers. These being effective troopers, any number may be used without in the least weakening the fighting power of the whole.

A rapid and secret advance is the indispensable condition of a successful raid. To prevent the enemy receiving intelligence of the movement, it is usual to march only at night, the party resting during the day in woods or other situations favourable for concealment. It is therefore important to have a good knowledge of the country to be

traversed, more especially as on expeditions of this sort it is obviously impossible to reconnoitre one's way along. But as few persons in an army are likely to have the requisite acquaintance with an enemy's country, it will often be necessary to rely principally on maps, supplemented by the services of a trustworthy guide. Without a good map and reliable guides, no raid can be undertaken in an unknown country.

The present equipment of British cavalry is of so rattling and noisy a nature as to be eminently unfitted for any service requiring secrecy. It is a matter of history that on several occasions an alarm (causing the failure of the expedition) has been prematurely given, owing to the extraordinary clatter caused by a body of cavalry in motion.

The limit of distance to which a raiding detachment may go for the accomplishment of its purpose is that which can be covered by the party in two or three nights. This depends on the state of the roads, the weather, condition of the horses, etc. A real raid, which must not be confounded with an expedition undertaken by what is called a "flying column," requires to be completely executed in a very short space of time, because the chances of being intercepted or cut off must increase greatly with every hour during which the detachment is out of communication with other troops. It is obvious that only mounted soldiers can be used for this work.

Mounted infantry, as before explained, are not suitable for independent action, when opposed to a strong and active cavalry. They might, however, be most usefully combined with cavalry for distant expeditions; the proportion of each being determined by the nature of the country to be traversed and the object to be accomplished. A force composed half of cavalry and half of mounted infantry, with a proportion of horse artillery, would form the most

perfect of "flying columns;" and such might be employed with the best results, either against an inferior and undisciplined enemy, such as we have had to deal with in most of our Asiatic campaigns, or to carry on an active partisan warfare against the communications of a European army, and to carry alarm into hostile territory.

Surprises.—Night Attacks.—Ambuscades.

The idea of effecting a surprise is present in all cavalry attacks. Regularly planned surprises of isolated detachments, etc., are, however, not uncommon, and may form the object and culmination of a raid.

Troops, especially infantry, should be surprised, if possible, in their bivouacs or night quarters. In this case the attack is generally made in the dusk of evening or in the early morning. Extended order might largely be made use of.

The outposts of a small body of infantry can seldom be any protection against a determined attack of cavalry, supposing the latter can get unperceived within a few hundred yards of the advanced sentries. This is because it is impossible to push them sufficiently forward to allow of the main body getting under arms before the cavalry, passing through the pickets at full gallop, can be upon them. The fire of such small parties, as the pickets will necessarily be, can never have any effect in checking cavalry in extended order. Cavalry outposts are a more efficient protection, since they are at a greater distance from the main force, and the supporting bodies may perhaps be able to charge with effect. On the other hand, cavalry surprised at its bivouac is very helpless. Artillery is the most helpless of all.

We may assume, then, that no small detachments of

troops are absolutely safe in their camps or bivouacs from a cavalry attack, unless protected by natural obstacles and the configuration of the ground.

It is precisely on these that the practicability or otherwise of the surprise depends. Not only is it necessary that the ground must allow of an attack being made, but also that the leaders should know something about it before anything can be attempted. Also, if the enemy is vigilant and diligent in patrolling, the presence of the force intending the surprise will probably be discovered when still some distance off, and no surprise will be effected.

The most favourable chances will be when the attacking force, having come from a distance, arrives in the vicinity of the enemy during the night, and when, the inhabitants being friendly, exact information may be obtained as to the enemy's situation and dispositions. If these are not against the cavalry, and particularly if the ground will allow of the advance being made at a gallop from the moment of being first discovered by the advanced parties, there is no reason why an attempt made about daybreak should not be completely successful.

In surprises it is nearly always of advantage to attack from two quarters simultaneously.

Detachments cantoned in towns or villages can often be surprised if the inhabitants are friendly.

Attacks made at night are only suitable for cavalry under exceptional circumstances. It is true that darkness deprives fire-arms of half their power, yet the difficulties of making a rapid advance at night when off the roads, the timidity of many horses, and the danger of some unknown obstacle, perhaps easily surmounted in daylight, bringing the whole to a standstill, all contribute to make it very unadvisable to risk cavalry in this manner. In general, surprises would be attempted at dawn or soon after sunset, •

there being in either case light sufficient to see the ground over which one is actually moving. If it is possible to advance close up to the outposts without being discovered, an attack in the evening would probably be more unexpected than if made at daybreak, which is the recognized hour for such attempts. Also, in case of failure, it would be easier to get off without suffering severe loss. The disadvantage would be that, if successful, a great part of the enemy would probably escape in the growing darkness, which would also render it difficult to carry out subsequent arrangements.

Although a regular night attack by cavalry alone can seldom be admissible, it does not follow that they would not be able to effect a very useful diversion when a night attack is being attempted by a large force. Such a diversion might either be a regular cavalry attack by successive squadrons or half squadrons, the leading half of the whole being in extended order, or a fire attack by scouts and horse artillery only—one or the other being adopted as the ground and other circumstances might render most advisable.

Surprises of convoys and bodies of troops on the march are effected by laying an ambuscade ; that is, by taking up a concealed position within a few hundred yards of the road by which the convoy or column is advancing, and charging out upon it as it passes. Considerable skill is required in selecting a good position, and also in getting the force into it without exciting attention. This position, with the necessary concealment, must admit of free movement being made in any direction, and allow of attacking, when the moment arrived, on a broad front. As soon as the position is taken up, scouts would be sent to watch for the appearance of the object of attack ; they must, however, be very careful not to allow themselves to be seen. Dismounted

sentries (probably lying down) would watch over the detachment. Any stray countrymen or others who might chance to view the proceedings would at once be seized and detained, whether friendly or not. It would often be possible to add greatly to the chances of success, by causing the pioneers to fell a tree or two across the road just beyond the position of the ambuscade, or otherwise to create some obstacle by which the enemy's march would be checked at that point. If the road was narrow and a defile, the obstruction might be placed at some distance ahead, and a party of scouts and others detached to defend it with fire-arms, thus stopping the head of the column, while the party in ambush burst out on its flank and rear. In all cases a small reserve should be provided.

If the ambuscade is discovered by the enemy's patrols, the leader has just one instant in which to decide whether he will fall on it at once, or, abandoning the project, withdraw his force as rapidly as possible.

There are instances of ambuscades being attempted on a large scale, whole divisions of cavalry being thus used at once. At Hanau, in 1813, 20 Prussian squadrons completely destroyed eight French battalions and took 18 guns. By making a proper use of extended order, combined with real determination on the part of the cavalry, I do not see why such a feat should even now be impossible.

Drill and Training.

It has been my aim to show in the previous pages, first, how a system of single ranks and extended formations is forced upon us by the destructiveness of modern infantry and artillery fire; and, secondly, how such a system, while directly increasing the actual fighting power of cavalry, will also heighten its general efficiency, and render it more

perfectly adapted for the varied and difficult duties it has to perform.

A great change in the formations of cavalry presupposes a corresponding alteration in its organization. Such changes, even when allowed to possess true economical as well as tactical advantages, are in our army invariably opposed in the most stubborn manner, both by military men in general, and also by a large class of the civilian officials who rule the army. There is therefore but little chance of any of the suggestions on this head to be found in the next chapter receiving attention, even supposing, which is very unlikely, that they are acknowledged to be good in the abstract. As, however, the necessity of adapting the formations and tactics of cavalry to modern requirements is urgent, it would be as well to see if our present organization, defective as it is, could not be fitted to the new system, *en attendant* that military millennium when we shall have a properly organized, and therefore efficient and really economical, army.

Looked at from this point of view, it would seem as if there was no insuperable difficulty to such an adaption. Each troop might be easily enough formed in single rank, and two of them would be the front and rear lines of a squadron, instead of its right and left troops. Every troop would then be under the leadership of its own captain, the senior only taking command when the squadron was detached.

Twenty-five per cent. of each troop might be selected as scouts; and if the system was so far adopted, there could be no reasonable objection to arming them with a superior firearm.

The expediency of providing the cavalry with pioneers has already begun to be discussed in military circles, and as the idea seems to be viewed with approbation by the

authorities, they will probably be introduced sooner or later.

The most serious obstacle to the adoption of the new system is the very weak strength of our cavalry regiments, particularly in horses. Until that is amended, commanding officers would have to content themselves with a small number of squadrons, it being required for the proper development of the system that the smallest squadron should not be less than 96 horses, including scouts and supernumeraries, but exclusive of pioneers.

Alterations in tactics and formations require alterations in drill and the method of manœuvring. The drill would be very simple, but a few words of explanation may not be out of place.

Fours would be told off from the centres of subdivisions; then, no matter how the sections might be inverted, incomplete fours would always come together. To avoid complications, the rule might be laid down that incomplete fours should always work together as a complete four. If together more than four, one or two of the ranks of fours would consist, in fact, of five or six men; but if together less than four, some closing up would be necessary when the fours were fronted. As, however, 'fours' answering to our present 'sections' would principally be used for marching on narrow roads, etc., and not for manœuvring, this would matter little. The exception is "double column of fours from the centres of squadrons;" and here, formations being almost always to the (present) front, the slight irregularity in the column would be of no consequence. Fours would never be put about. The danger of retiring fours-about in front of an enemy is well known.

Scouts ride on the outward flanks of fours, there being as nearly as possible one of them to every rank of fours. In twos (half-sections) they ride on the outward flank of

every alternate two, each scout remaining constantly by the same man. Similarly with single files, except in ranking past. In double column of fours, however, the scouts would remain in rear always, those among them

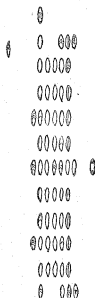


FIG. 14.—One line of a squadron of 42 files in column of fours.

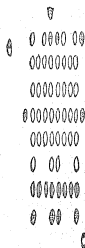


FIG. 15.—One line of a squadron of 42 files in column of double fours from the centre.

Explanation.

| | |
|--------------------------|---|
| Leader | ⊙ |
| Serre-file officer | ⊙ |
| Trampeter | ⊙ |
| Scouts | ⊙ |

Non-commissioned officers are distinguished by their chevrons.

In order to show broken fours I have made the line 42 files strong, the centre sections being 11 horses each.

who are non-commissioned officers, together with any other supernumeraries (officers excepted), forming the last rank of all.

Column of sections would be formed on the word "Sections right! [or left]" This would be followed by "Leading section, left [or right] wheel!" if the column was to be directed to the front or rear. Line would be formed

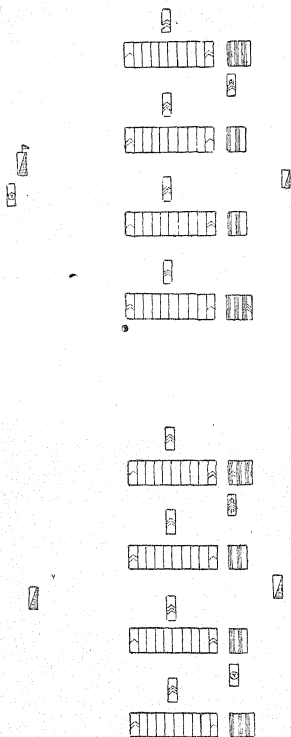


FIG. 16.—A squadron of 40 files in column of sections. Scale, $\frac{1}{300}$.

on the leading section (always) by the incline of the rear sections. Section leaders wheel with their sections, remaining always in front of the centre, except the leader of No. 3 (left centre) section, who, when the squadron is advancing or retiring in line, places himself in front of his right file and guides the squadron. Scouts ride on the outward flanks of their sections, keeping half a horse's length away from the flank man, and they drop to the rear when line is formed. (See Fig. 15, in which the scouts are shown half-shaded; remaining ranks as in Fig. 9.) When sections are wheeled about, or two successive wheels are made to the same hand, the scouts would turn their horses and ride in line with the section leaders, being careful, however, not to interfere with them in any way.

If the commanding officer intends to form a line to the outward flank, the line leaders would previously have been brought over by the word "Leaders right! [or left]," which would also be a signal to the scouts to change their flank by dropping to the rear and passing through the intervals. If a line had suddenly to be formed to the rear, after putting sections about, the word "Leaders to the front!" would bring them round, the scouts, etc., clearing the front by moving out diagonally to each flank at an increased pace, checking but not turning their horses when opposite the intervals; then, allowing the line to pass them, they would resume their stations in rear.

Line can be formed *half* right or left from column of sections by the word "Sections, half right! [or left]," followed by "Front form!" when the rear sections will form on the leading one as before.

As a rule, all manœuvring would be by "sections," which supply the place both of fours and troops. In changes of front, the base *squadron** would wheel to the

* That is, the front line of it.

required extent, having been previously put about by sections when a flank is to be thrown back. The remainder of the line forms by the *échelon* march of sections, as now with the troops. Changes of position may be executed by the *échelon* march of squadrons, or by squadron columns of sections, or by double columns of fours. In the latter case, the heads of the squadron columns having been brought square to the new alignment, the squadrons would "front form" on the move, at 50 yards' distance from it. It would then be easy to lead them correctly into line.

Sections would be almost always used where fours are now, the front of a column of sections being from 8 to 12 yards; the word of command being "Sections, right! [or left]," "half right," or "half left," but always "Sections, right-about wheel!"* previous to a retirement.

When the squadrons only move a short distance, as in deployments and forming quarter column from line, it will perhaps be found that fours will be a more convenient formation than sections.

Manceuvres may be occasionally performed by subdivisions instead of sections. In this case the section leader on the inward flank would give the word of command to the subdivision.

Line can be formed to the front or rear from column of sections or subdivisions as at present. An oblique line can be quickly formed by the word "Sections, half right [or left]," followed by "Front form!" from squadron-line leaders; the sections, and subsequently the squadrons, inclining to get into their places.

Squadron intervals are always equal to the breadth of a section; that is to say, they will vary from eight to twelve yards.

The second line conforms to the movements of the first. Its normal distance from the leading line is equal to its.

own front, plus an interval. Manœuvring in two lines will then be accomplished without difficulty. For instance, in changing front to the right, the second line need only advance in column of sections from the left and wheel into line as soon as the whole column has entered the new direction. In changing front half-right, the head of the column would be directed half-right, the sections would be wheeled into line at the proper moment, and the line would advance until it had got its distance. In changes of position the second line would always move in squadron columns of sections or double fours.

If the leading line advanced in columns of squadrons, subdivisions, or sections, the rear line would immediately follow in the same order, the whole forming one column. On line being re-formed to the front or rear, the second line conforms—in the latter case becoming itself the leading line; but if line is formed to a flank, the leading line must advance a distance at least equal to its own front and an interval, after having wheeled into line, in order to allow of the rear line forming at once, without being put to the necessity of retiring to get its distance. If this cannot be done, the head of the rear-line column would change direction towards the rear when the first wheeled into line, changing again to the opposite hand when enough ground had been gained.

The rear line may, for special reasons, close up to "half distance" or "squadron distance" from the leading line, and manœuvres may be executed on the same principles as when at full distance.

An "entire line"—that is, both lines standing together on the same alignment—may occasionally be formed; as, for instance, when it is desired to deceive an enemy by a great display of force. They can be formed to a flank from line or column with great facility.

In all formations a base would be placed for the second line as for the first.

Columns of wings and *échelon* of wings would be common formations. In these, each wing of the first line would be immediately followed by the corresponding wings of the second line; each of these bodies would maintain its proper distance (equal to its own front and an interval) from that which it succeeds.

In the drill practised by the Prussians and Austrians, a formation frequently employed where we use "quarter columns" is that of a series of squadron columns (of divisions, or as they call them, and as I should wish to call them, "sections") brought close together; being a precisely analagous formation to that of a brigade in line of contiguous quarter columns. This order presents many advantages; for instance, the squadrons have only to move out to deploying distance to form a line of small columns, which is the formation most useful for the advance preliminary to an attack.

In single rank each line of a regiment would form its own column, and that of the second line might either be at full distance or immediately in rear of the first. In any case squadron lines would have their natural relation to one another, and the transition to attack formations or column of route would be easy and rapid.

This method of forming columns appears to be generally superior to that which we follow, and it is exactly suited to the single-rank system. The close columns are well suited for the assembly of troops, and particularly convenient for an attack by successive squadrons in extended order, as described in the first chapter. It would therefore be the ordinary formation for bodies of cavalry when standing in readiness to act, if called on, while an infantry and artillery contest was taking place.

On the line of march squadrons would be kept together as much as possible, their rear lines following immediately after the leading ones. When marching by sections, the front can be somewhat diminished without breaking into fours, by causing the scouts, etc., to move in between them.

In brigade the distance apart of the lines would be that appropriate for the stronger regiment when acting by itself. The principles of brigade movement would be very much the same as those hitherto practised. Eight squadrons should be considered a full brigade.

Pioneers would, on field-days and on the line of march, be brought together and formed into a "half squadron"—four sections, two front and two rear line, those belonging to each squadron forming a separate section. They would be led by a selected officer. While the regiment was manœuvring, the station of the pioneers would be fifty yards in rear of the centre of the rear line, or of an entire column, or of the rear-line column, when in separate columns. They would move independently, by word of command of their own officer. On the march they always form part of the advance and rear guards. On daily parades pioneers would attend and fall in with the squadrons to which they belong, since it is important that they should be as good cavalry soldiers as their comrades. A detached squadron would, of course, take its pioneers with it. On parade they would form an independent section.

It should be steadily borne in mind that manœuvring is a means to an end, and not the end itself. All manœuvring has for its object the placing of the squadron, regiment, or brigade in a position to make its attack with the greatest effect. We all know this, but are apt to act as if the power of being able to execute complicated movements with great precision was the real object for which

cavalry existed. Too much time is now spent in practising field movements without reference to the essential thing—the attack—to which they all lead up. Some commanding officers are extremely fond of the parade movements, which when constantly performed lose their only value—that of testing the general steadiness of a regiment in the presence of an inspecting officer.

The latest regulations have reduced the number of field movements, while greatly simplifying them. A further curtailment would, however, do no harm.

I have before made some remarks about celerity. Let us have as much precision as possible, but habitual celerity is of paramount importance. All manœuvring should be “on the move;” that is, when the regiment is in motion and a movement is ordered, the base should *not* halt, but continue at the original pace. It is always easy to halt the base if required. Nothing tends more to induce a slow and hesitating style of working as the practice of halting at every movement. The commanding officer’s caution, “On the move,” is often unheard, and sometimes forgotten; and this is apt to produce unsteadiness and confusion.

Some commanding officers, I believe, always work their regiments on the move, and only deem it necessary to give that caution when they intend any manœuvre to be done “on the move,” the regiment being at the time halted. Others, no doubt strictly according to regulation, insist upon the base halting whenever the command is not preceded by the above words.

As before pointed out, it is absolutely necessary that bodies of cavalry should be able to gallop over considerable distances. If the Austrian cavalry habitually practise the attack over 1000 paces of ground, and always considers itself capable of galloping much further if necessary, •

why should not we, who boast of the superiority of our horses, not be able to do the same? It is true our horses are terribly weighted, but this defect can—and, let us hope, soon will—be remedied. At all events, in drill order the weight is not very excessive, and the horses might certainly be more accustomed to gallop a good distance. If a horse is never asked to go for more than a quarter of a mile at the outside, it is not to be supposed that he will be able to get much further if suddenly called upon.

The attack itself should be constantly practised. It is the essential thing—more difficult and vastly more important than “marching past. Every form of attack should receive equal attention, and an effort should be made to give it in practice as much *vraisemblance* as possible, the attacking body issuing from behind cover, or from an imaginary position, and falling on in an appropriate formation. A rapid transition from a marching to a fighting order, followed immediately by an attack, is a very necessary practice, but one, I think, not much attended to. It would be of great advantage to introduce the Austrian plan of *marking an enemy*, on whom the attack would be made. A few scouts—say, one from each front-line section, besides those already out—placed by the major, would perfectly represent the force to be attacked. If infantry was to be represented, these men would remain stationary; if cavalry, they would gallop towards the line led by the major. When the charge was sounded, they would turn their horses and gallop away. The charging squadrons would be rallied well to the front, and the pursuit regularly taken up by the second line. The same care should be taken with regard to the disposition of the supporting lines as in real warfare. When the order to attack was given, the second-line leader's word would be,* “—— squadrons

* Unless otherwise ordered.

to the right, — to the left—*sections outwards.*" The sections would wheel again into line when clear of the flanks of the first.

No commanding officer ought to feel satisfied with his regiment until it can gallop, whether in close or extended formation, with increasing speed and in perfect order, for at least half a mile, and then charge without opening out or breaking the ranks.

With regard to extended-order attacks, I do not conceal from myself that to guide and control the lines will be no easy matter, especially in those attacks in which the direction has to be changed during the advance. But great difficulties are also found in the management of extended swarm lines of infantry. In both cases they can only be overcome by practice and constant attention on the part of all the leaders. It is partly in consequence of the great importance I attach to the use of extended order that I have proposed the division of the squadron lines into small sections, with a separate leader for each section. Every section-leader riding in front of his group of from 8 to 12 men, will be a mark for them to follow, which they must be most careful to do under all circumstances.

The final direction of the attack must always be mentioned by the commander, thus—"Attack by successive squadrons extended—*towards the left,*" or "Attack to the front, by successive squadrons extended." The word should be repeated by section as well as squadron leaders, in order that all the men may hear it. The extended-order attack should be first taught at a walk, and then at a trot, before being performed at speed. Single-rank lines are very easy to rally. In a short time the men would learn to close to their leaders, when ordered, with great rapidity and without confusion.

Every opportunity should be taken of manœuvring and practising attacks over rough ground.

A great mistake is made in our service by placing all instruction in the hands of the regimental staff. If a troop or squadron does well or ill on parade, its officers, having no responsibility in the matter, receive neither praise nor blame. All they have to look to is to avoid themselves making any mistakes. Consequently few of them take much interest in their men, or ever become acquainted with their individual peculiarities. I do not believe, however, that officers in general are by any means so lazy or indifferent to their profession as some would try to make out. But so long as an officer's work consists merely in the almost mechanical performance of a dry and wearisome round of routine duties; so long as captains are only partially responsible for the discipline and interior economy of their troops or companies, and not at all for their instruction and proficiency in military exercises—so long will "duty" be more or less a "nuisance" and a "bore" to the generally intelligent and well-educated gentlemen who officer our army. If, however, the position of the troop or company officers carried with it a proper degree of responsibility; if they were but permitted to do work of which they felt the importance; if a man could take a pride in his troop, as being the smartest and steadiest on parade, or the keenest on outpost duty, from feeling that it was he himself that had made it so—we should soon cease hearing complaints of the want of zeal among officers, or their professional abilities unfavourably compared with those of the officers of continental armies.

I do not, however, wish it to be understood that I would place a heavy burden of additional work on the shoulders of officers, who have not altogether such an easy time of it as

civilians are apt to imagine. I am simply desirous that such duties as are merely matters of routine should be curtailed as much as possible, and for them substituted a directly useful and far more interesting and important class of employments, by which the talents and energies of officers would be turned to account; they would themselves become better acquainted with the details of their profession; and the instruction of the men be carried to a higher point than the overworked regimental staff can now manage.

The instruction of recruits and of young horses, until both are fit to work in the ranks, must still be left to the adjutant and riding-master; but, beyond this, why should not officers be made as much responsible for the drill and general instruction of the men under them as for their defaulter sheets and pocket ledgers? Why should all instruction drills be under the adjutant? And why should not leaders of troops or squadrons be trusted to correct the mistakes and perfect the drill of their own men? All instruction in outpost and picket duties, skirmishing, fighting dismounted, etc., should be imparted to the men by the officers under whose immediate leadership they will have to act in the field.* Jumping practice (except for young horses) and instruction in the use of arms (except musketry) might well be carried out by troop officers. Squadrons ought also to be frequently practised in attacking in close and extended order, over all sorts of ground, under their own officers.

To do all this would necessitate frequent independent drills of the units composing a regiment, whether troops or squadrons; but in particular the drill of squadrons separately under their own commanders:† also theoretical

* Some effort has lately been made to carry out this.

† When writing the above I had not had the pleasure of reading Major-General Walker's brochure on the cavalry division. It is with much satisfaction I observe that my views on the organization by squadrons and the importance of independent squadron drills are in accordance with those of that distinguished and experienced officer.

instruction in outpost duties, reconnaissance, etc. In the case of non-commissioned officers, the latter might be carried to the highest pitch of which the instructors are capable; and in this way a portion, at least, of the knowledge which officers have gained at the Military College, or at classes of garrison instruction, would be diffused among a responsible class of men, who have now no opportunity of acquiring anything of the kind. Probably the advantage would be mutual; and if the non-commissioned officers did not learn much, at least the officers would be prevented from forgetting what they already know.

It has, I believe, been asserted that to intrust any part of the instruction in military duties to troop or company officers would lead to a want of uniformity, and the men would be taught to do the same thing in all sorts of different ways. This argument seems too absurd to be seriously combated, since it presupposes not only the insufficiency of the regulations to secure the object for which they are intended, but also the absence of due supervision on the part of commanding officers.

The musketry course for the rank and file might be shortened with advantage. The scouts, however, would receive the completest instruction possible.

Not half enough attention is paid to making the men individually perfect in the use of their primary weapon, the sword or lance, and formidable to the enemy in single combat. Personal prowess and a well-grounded self-reliance have always been more necessary to the cavalry soldier than to his infantry or artillery comrade. It is, at least, as important as ever it was for each trooper to be a good horseman and master of his weapon. Attacks in extended order will not be executed with proper vigour unless every man has full confidence in his own horseman-ship and skill in the use of arms. The horses should be

well broken, not only to obey the hand and leg, but also to jump and get cleverly over ground which is now shunned by cavalry.

A vast lot of time seems to be spent in riding-school and in formal parades which would be much better occupied in exercising the men in the use of their proper weapons. Riding-school is a very excellent thing, but, like other drills, it is too much made an *end* instead of a means. To be perpetually sending trained men and horses to riding-school, except for the correction of particular faults, is like compelling an educated man to do copies in a copy-book, lest he should forget how to write. It is difficult to understand how so much riding-school can be beneficial; and we all know that it is not popular. It would be far more likely to improve the riding of the men, and to make them in every way more efficient soldiers, if for half the riding drills was substituted fencing on foot and on horseback. Nothing is so likely to make men charge with confidence against any odds as the well-founded belief in every individual's breast that he is likely to be more than a match for any antagonist he may encounter.

Much good has been effected by the introduction into our cavalry of the warlike sports of tent-pegging, lime-cutting, etc. It is to be hoped that they will never be discontinued.

The training of scouts should be considered of great importance, and no pains be spared to bring them to the utmost pitch of excellence. They must first of all be perfect cavalry soldiers; probably no man would be selected as a scout who had not served at least two years, and given proof of intelligence and aptitude in military duties. Scouts should be good riders and swordsmen, as well as good shots. They must, of course, be thoroughly

drilled in dismounted skirmishing and attacks. For this purpose they would have to be occasionally assembled for exercise under a specially selected officer. The same officer would always lead them when any fighting on foot was required, both in practice and in the field. Practice in patrolling and reconnaissances should also form part of their regular exercises. Every scout ought to be able to make a clear report on ground, and understand what is and is not favourable for the working of the arm. Scouts should take a pleasure in their duties, and have a lively sense of the responsibility which falls on them, but their training to dismounted fighting should never make them forget that they are *cavalry* soldiers.

The horses of scouts should be carefully selected and trained. They ought to be the stoutest and best in the regiment, since they may often be called upon to do more work than those of the rank and file. Bad-tempered horses are unfitted for the use of scouts, as also are those which are unwilling to part company with others. They must learn to stand steadily while their riders dismount, fire, and mount again. They ought, more than other cavalry horses, to possess the power of getting cleverly across country. Great jumping power cannot, of course, be expected of a trooper, nor is it necessary that they should possess it, but they must be safe over rough ground, and never refuse or make a mistake at any small place. It is of particular importance that scouts' horses should lead kindly from the saddle. The dismounted fighting of mounted soldiers cannot be made properly effective unless the horses of the dismounted men can be rapidly taken away and brought up to them again, as occasion may require. It is not every horse that can be handled in this way; but many, quite sufficient to mount the scouts, will take to it kindly enough. It would not be difficult to

arrange a plan by which a led horse could be easily and quickly attached to the saddle of the man leading him. The collar-chain might be utilized for this purpose, and the arrangement should be such as would be available for either side, as required. A great strain would be taken off the man who leads, and he could never be pulled out of his saddle or compelled to let go a refractory animal. Generally he would keep a hold of the chain or leading-rein, to guide the led horse, but on an emergency he would have both hands free; and it must be remembered that, if attacked, a led horse on the *near* side would not be altogether a disadvantage, provided the man was able to use his bridle-hand for the management of his own horse.*

A mounted scout or ordinary trooper, with one led horse, ought to be able to go at any pace anywhere where he could go singly.

* Since writing the above I have observed that Nolan makes the same suggestion.

CHAPTER III.

*ARMS, EQUIPMENT, AND ORGANIZATION.**Different Classes of Cavalry.*

Few questions in the military world have been more debated than the comparative advantages of heavy and light cavalry, and even now no very definite conclusion seems to have been come to on the subject.

All English writers on cavalry have gone in for light cavalry, but their dictum does not seem to have been much regarded by the authorities, who are, presumably, supported by the opinions of the superior officers of the service; in fact, at the present moment we have no light cavalry—except in name.

The idea of heavy cavalry implies large, powerful men, mounted on tall and heavy chargers; and light cavalry that of slight, wiry men, on smaller but more active horses.

The advocates of heavy cavalry insist upon their superiority in actual combat; and those of light horse, while claiming for them an equality of fighting power with the heavies, point out their advantages for outpost work and *la petite guerre*.

Now, the first business of all soldiers—cavalry, infantry, or artillery—is undoubtedly to fight, and if heavy cavalry are really more powerful in this respect than light, it is a

very strong point in their favour. In discussing this question, the superiority of one or the other when coming into actual contact in the shock of a charge is the crucial test, and it is constantly asserted that the weight of the heaviest always enables them to ride down their lighter opponents; but as either side can point to certain successes gained at various times by the particular class they advocate over the other, it does not appear that a reference to historical examples will much assist us in coming to a decision. It is always possible, however, to examine the matter theoretically and endeavour to find out which *ought* to be generally successful.

Mathematicians tell us that the striking force of any body in motion depends on its *momentum*, which is the weight multiplied by the velocity. If, then, two equal bodies of cavalry—one heavy, the other light—attack each other on good ground, with equal courage, in equally good order, and with no advantage to either from manœuvring, the success of one over the other will depend on the superiority of its momentum, or combination of weight and speed.

Let us take these constituents separately; first, the weight. In a Prussian book, quoted by Major Dwyer in his excellent work, "Seats and Saddles," the weight of the heavy horse is given at 1152 lbs., and that of the hussar's horse at 921 lbs.* Let us suppose the personal weight of the heavy dragoon or cuirassier to be 13 stone (182 lbs.), and that of the hussar only nine stone (126 lbs.), which seems to me to be about the outside difference, and leaving out the saddlery and kit as being nearly the same in each case, and therefore not materially affecting the result, we find that

* This appears to be a very good average. In various books 740 lbs., 864 lbs., 992 lbs., 1000 lbs., 1120 lbs., 1176 lbs., 1200 lbs., are all given as average weights of horses.

the total weight of the heavy (man and horse together) amounts to 1334 lbs., or 95 st. 4 lbs., while that of the other is 1047 lbs., or 74 st. 11 lbs.; so that the total weight of the heavy (man and horse together) exceeds that of the light horseman by 287 lbs., or $20\frac{1}{2}$ stone. Now for the velocity. It is almost impossible to assign any rate that can be relied on as a reasonably correct average for the heavies. We have heard of heavy cavalry that charged only at a trot! It is not, however, quite so difficult to decide approximately upon the speed attained by a really light cavalry, supposing them to ride, kit and all, between 15 and 16 stone, and to be efficiently, not magnificently mounted, with their horses tolerably fresh and in good condition. After some consideration, I think 30 miles an hour (43·99 ft. per second) to be about the mark. This, of course, stands merely for the speed at the moment of contract, and which has only been attained in the last 100 or 150 yards. At this pace, however, I calculate that it would be necessary for the heavy dragoon to be galloping at a rate of only 23·54 miles an hour (or 54·53 ft. per second), in order to acquire the same momentum. In other words, the hussar or light horseman must have a superiority of pace of very nearly $9\frac{1}{2}$ feet per second to be on an equality with his heavier antagonist. This is a very great difference, which will become the more apparent when we think that, if the two were started in a race of one mile and kept up the above rates all the way, the light horseman would pass the winning post 380 yards in advance of the heavy.

Now, it can hardly be reasonably supposed that, if the heavies were as well mounted in their own style as the others, so great a difference of speed would actually exist. Some advantage in that way would probably be always possessed by light cavalry, but it would be rarely sufficient

to balance matters, and there can be little doubt that heavy cavalry *ought* to be superior in the actual shock of the charge, while their greater height and length of reach are undoubtedly advantageous in the *mêlée*.

There are, however, several points which merit careful attention. First of all, in looking at the weight which gives the dragoon his superiority, we find that while the highest difference between the men is four stone (not likely to be more), the difference between the horses is 231 lbs., or $16\frac{1}{2}$ stone—four times as much as the difference in the men's weights—consequently the real superiority lies in the difference between the horses. In fact, if the heavy man were a stone or two lighter, it would decrease the momentum only to a very small extent; while every horseman knows that two stone off a horse's back will make *to him* a very great difference. Indeed, it may be confidently assumed that the slight loss in weight would be fully compensated by the increase in velocity obtained from the greater freshness and vigour of the horse.

Secondly, as to the difference in the horses. There is no doubt that the powerful and rather heavy—in fact, somewhat “carty”—horse required by the very heavy dragoon is naturally slower than the smaller, lighter, and better-bred nag of the ideal hussar. If it were not so the latter would seldom have a chance when encountering heavies. The coarse-bred and slow horse is the only sort that can be procured sufficiently cheap and yet capable of supporting the frightful weight of 22 or 23 stone,* which the troop-horse has to carry. A lighter horse is overweighted, and must fail. It is a very different thing to support this weight for days together, constantly marching and with plenty of hard work on picket, etc., to getting through a

* For this is what it comes to when on service and the men have to carry rations, corn, and sometimes forage.

field day at home with only 14 stone up. The lighter and speedier horse must be lightly weighted, and then his speed and activity will have full play, and the velocity necessary to put the light hussar on an equality with the heavy may be actually attained. This will frequently happen if the latter are undermounted or have been overworked. When cavalry are so absurdly heavy as to make a practice of charging at a trot, as was the case with the cuirassiers of the First Empire, they will be easily beaten by good light horsemen. Our light dragoons,* in the Peninsula and Waterloo campaigns, cared nothing for the French heavies, and sometimes beat them like sacks. It is, I think, for this reason that light cavalry, or what is called such, has been so popular with English writers on the subject.

The obvious defect of the heavy horse is his coarse breeding and want of pace—he can neither gallop fast nor far. If, however, the dead weight now carried could be reduced one-half and the mature dragoon be an active, well-made man of 11 st. 7 lbs., or less, the total weight would amount to no more than $17\frac{1}{2}$ or 18 stone, including *everything*, and it would be possible to put this on a large and powerful, yet pretty well-bred horse—as the best of our cavalry horses are—without overweighting him. A good troop-horse would then be up to the weight he has to carry, which is not the case at present, and a splendid *heavy dragoon* would be the result, although the men would ride what is now called light.

This is the sort of light cavalry which is so often, and correctly, recommended, the idea being to retain all real power and get rid of all lumber; and if it was carried out there is little doubt that our good horses, under a more reasonable weight, would be able to go as fast as any light cavalry proper in the world.

* They were not, however, very light cavalry.

Again, while allowing to heavy cavalry, and especially to the sort of dragoon above indicated, a superiority over all light cavalry proper in the shock of the charge, it must be acknowledged that, highly important as this point is, it is almost the only one in which heavies can claim to have a marked advantage over their light comrades, and it is not so often that hostile bodies of cavalry meet in their charge with a crash as some people fancy. It would appear that, not unfrequently, the courage of one side or the other fails them, and they turn away before meeting. When this does not occur, it generally happens that the files of one or both sides are opened to a considerable extent, the hostile lines slide into one another, and a *mélée* ensues. (I have elsewhere endeavoured to point out the advantage likely to be gained by a line compact and closed in to its centre over antagonists who suffer themselves to become loose and open in the charge.) In this case heavy cavalry would surrender the greater part of their natural advantages; for in hand-to-hand fighting skill and courage are of more avail than mere strength. The only advantage now possessed by the large man is in his greater length of reach, but this is likely to be partly compensated for by the greater activity of the smaller horse. The individual excellence of each trooper—and I will remark that this is of far more importance to the horse than to the foot soldier—does not depend upon size or physical strength: a well-broken horse, good riding, the sharpness of the sword, and a thorough knowledge of its use—these are the qualities necessary to be victorious over one's antagonist, and not ponderous strength. I do not say that the heavy dragoon may not possess all of them in a high degree, but only that he is liable to be equalled, perhaps excelled, by the light horseman.

In attacking infantry and artillery, the cavalry that can,

gallop fastest and furthest without exhausting the horses is the best, and this is likely to be light cavalry.

On the continent, however, the opposite opinion seems to prevail, and it is there held that *cuirassiers*, the heaviest of cavalry, are best fitted for attacks upon infantry. The French have largely increased the number of their cuirassed regiments since the war. This is because it has been found that the cuirass is tolerably impervious to rifle bullets, which have been described as "pattering like hail" on the steel breast-plates of the French horse at Vionville! We know, however, that in spite of their armour, these unfortunates were mown down in heaps, and I imagine the regiments, whether cuirassed or not, could hardly have suffered more severely; so it is difficult to see what advantage is gained by their use. On the other hand, the cuirass is fatiguing and irksome to its wearer, and, besides, it leaves exposed his neck, arms, stomach, and legs. His horse, of course, is unprotected, and if the horse is killed it is as good, from a tactical point of view, as killing the rider. It also adds greatly to the weight to be carried. Cuirassiers are proverbially slow in their movements, and can never dash on infantry and artillery with the lightning speed necessary to insure success in the present day. If armour is really a protection, it would be a better and more intelligible plan to sheath soldier and steed complete in mail, like a man-at-arms of the 15th century. As it is, the cuirass seems to serve no good purpose, except perhaps to give a certain confidence to the wearer. Highly as I value a good *morale*, I should be loth to believe the courage of the British dragoon was not equal to any emergency without such adjuncts.

For all outpost duties, covering the front of an army, pursuits, raids, and the minor operations of war, the palm

must be given to light cavalry; these are their peculiar *métier*, and an essentially important one it is. I feel bound, however, to acknowledge that for the performance of these duties mounted rifles might be partially substituted with advantage, particularly, of course, in difficult countries.

I am aware that a large portion of the Prussian cavalry in the late war was heavy, and that they performed what are usually considered light cavalry duties admirably well. Of course, really good and well-instructed cavalry will perform all their duties well. The superiority of real light cavalry consists in their standing "knocking about" so much better than heavies. We must remember, too, that the Prussian army is raised by conscription from a big-boned and sturdy race, and that a large supply of good light cavalry recruits is probably not forthcoming. They also seem to be fortunate in having a surprising number of good horses on which to mount their heavy men.

In looking at the question as a whole, the conclusion is, I think, forced upon us that no one class of cavalry is perfectly adapted for all the very different sorts of work that they may be called upon to perform; if there is, it is certainly the dragoon, riding between 17 and 18 stone, who, being a powerful man on a large horse, I call a *heavy*. But to mount these men as they ought to be mounted, a somewhat expensive class of horse is requisite. The dragoon's charger should be as well-bred as possible, but also powerful and up to the weight he has to carry, which is indeed no trifle, though so much less than is now permitted. Such horses, besides costing a good deal of money originally, have to be supplied with a large amount of food—a very important consideration on a campaign; and I may also add that big horses are, as a rule, neither so hardy nor so sound as small ones. A finely mounted,

heavy cavalry should, then, be taken some care of, or it will lose its superior fighting qualities, and the only way in which this can be done is to have another class of really light cavalry to relieve it of a great portion of the necessary outpost, reconnaissance, and scouting duties, which are also those most trying to the horses.

This light cavalry, riding as little as possible over 15 stone, would be best mounted on active and hardy little horses, averaging 15 hands. Although our horse supply is certainly not what it should be, there would still, I think, be no great difficulty in finding a sufficient number of short-backed, short-legged, and tolerably well-bred nags able to carry efficiently this comparatively moderate weight through the hard work and short commons of actual service in the field. This class of cavalry would not only be much cheaper to mount, in the first instance, but would cost less to keep up than the heavies. They would, I believe, be perfectly efficient for any purpose, except that of meeting the choice heavy cavalry of a European enemy in the shock of a charge.

Hitherto we have only been considering, distinctively, heavy and light cavalry, the types of which are found in the dragoon and hussar. There is, however, another class of horse, viz. lancers, about which a word or two must be said, especially as the lance seems to have come much into favour of late, principally owing to the esteem with which it is regarded by the Germans, whose lancer cavalry made so great a figure in the late war.

In the British service lancers are considered light cavalry, but as our weights are upside down, that is not of much importance. One thing is pretty certain, and that is that a 9½ stone man, such as a real hussar ought to be, is hardly capable of wielding the lancers' formidable weapon, and while there are objections to elevating them

to the rank of heavy cavalry, the men should certainly possess superior physical power to the real light horseman. A wiry, well-made man of 10 stone, or 10 st. 7 lbs., would probably be about the thing, and he would have to be mounted on a somewhat larger and more expensive horse than suffices for the hussar.

Thus would be formed an intermediate or medium class of cavalry—all lancers—the number of which in our service would depend upon the degree of importance to be attached to the peculiar weapon they wear; and this brings us naturally to the general question of

Arms.

L'arme blanche, the sabre or lance, is the first weapon of the cavalry soldier. Fire-arms are auxiliary and very subordinate, and although circumstances may compel a somewhat frequent resort to them, yet it should never be lost sight of that their true relation to the former is precisely that of the infantry soldier's bayonet or side-arm to his chief weapon, the rifle.

The sabre is commonly considered as the ordinary weapon of the horseman, and in the British service but five out of the 28 regiments of line cavalry are armed with the lance. Concerning the latter weapon opinions are much divided, and it has been at times extravagantly praised, and also abused with equal fervour. Sometimes it is "the queen of weapons," and its deadly thrusts, moral effect, and so forth are expatiated on. On other occasions and by other persons we have been told that it is cumbrous and useless in a *mêlée*; also that the want of a carbine, and its long shaft and conspicuous flag, render the bearer unsuitable for outpost work, etc., etc.

In the British army the lance can hardly be said to

heavy cavalry should, then, be taken some care of, or it will lose its superior fighting qualities, and the only way in which this can be done is to have another class of really light cavalry to relieve it of a great portion of the necessary outpost, reconnaissance, and scouting duties, which are also those most trying to the horses.

This light cavalry, riding as little as possible over 15 stone, would be best mounted on active and hardy little horses, averaging 15 hands. Although our horse supply is certainly not what it should be, there would still, I think, be no great difficulty in finding a sufficient number of short-backed, short-legged, and tolerably well-bred nags able to carry efficiently this comparatively moderate weight through the hard work and short commons of actual service in the field. This class of cavalry would not only be much cheaper to mount, in the first instance, but would cost less to keep up than the heavies. They would, I believe, be perfectly efficient for any purpose, except that of meeting the choice heavy cavalry of a European enemy in the shock of a charge.

Hitherto we have only been considering, distinctively, heavy and light cavalry, the types of which are found in the dragoon and hussar. There is, however, another class of horse, viz. lancers, about which a word or two must be said, especially as the lance seems to have come much into favour of late, principally owing to the esteem with which it is regarded by the Germans, whose lancer cavalry made so great a figure in the late war.

In the British service lancers are considered light cavalry, but as our weights are upside down, that is not of much importance. One thing is pretty certain, and that is that a $9\frac{1}{2}$ stone man, such as a real hussar ought to be, is hardly capable of wielding the lancers' formidable weapon, and while there are objections to elevating them

to the rank of heavy cavalry, the men should certainly possess superior physical power to the real light horseman. A wiry, well-made man of 10 stone, or 10 st. 7 lbs., would probably be about the thing, and he would have to be mounted on a somewhat larger and more expensive horse than suffices for the hussar.

Thus would be formed an intermediate or medium class of cavalry—all lancers—the number of which in our service would depend upon the degree of importance to be attached to the peculiar weapon they wear; and this brings us naturally to the general question of

Arms.

L'arme blanche, the sabre or lance, is the first weapon of the cavalry soldier. Fire-arms are auxiliary and very subordinate, and although circumstances may compel a somewhat frequent resort to them, yet it should never be lost sight of that their true relation to the former is precisely that of the infantry soldier's bayonet or side-arm to his chief weapon, the rifle.

The sabre is commonly considered as the ordinary weapon of the horseman, and in the British service but five out of the 28 regiments of line cavalry are armed with the lance. Concerning the latter weapon opinions are much divided, and it has been at times extravagantly praised, and also abused with equal fervour. Sometimes it is "the queen of weapons," and its deadly thrusts, moral effect, and so forth are expatiated on. On other occasions and by other persons we have been told that it is cumbrous and useless in a *mêlée*; also that the want of a carbine, and its long shaft and conspicuous flag, render the bearer unsuitable for outpost work, etc., etc.

In the British army the lance can hardly be said to

have had a fair trial, but we may at all events say that those regiments who carry it are to a man in its favour. Abroad we see that the Prussians, who are undoubtedly the great cavalry-using nation of the day, as well as the most successful in war generally, have pronounced strongly in its favour; and their uhlans were extensively employed in outpost, reconnoitring, and advanced-guard duties. On this point, too, I may be allowed to say that the introduction of specially armed scouts would render lancers as effective as any other sort of cavalry; for the only use of a fire-arm to a *vedette* is to enable him to give an alarm, which can be done as well with a pistol as anything else.

The moral effect of the lance is undoubtedly great. We know from the evidence of many officers that even good cavalry are a little shy of encountering lancers. It is by infantry, however, that they seem to be most dreaded, and with reason. Here the length of the weapon is an unmixed advantage, not only against infantry standing firm with presented bayonet, but also against the same dispersed, whether flying, or crouched behind bits of cover, or prone on the ground.

In the war with the Indian mutineers it was a common trick for the rebel sepoys to lie down, let the cavalry pass, and then get up and fire. This has been tried, too, on other than Indian battle-fields,* and the same manœuvre will, no doubt, become common if it is ever the regular thing for cavalry to roll up and ride over infantry in loose order; and although the attack of successive lines of horsemen would probably prevent the practice affecting the success of the charge, still it would be annoying, and increase the number of casualties. Now, it is very difficult

* The Russian infantry at the battle of the Trebia, in 1799, were charged by the French cavalry when in line: they fired during the advance to the last moment, lay down, and, letting the French horse pass over them, got up and gave them a volley that emptied many a saddle.—Nolan.

for a dragoon to reach with his sabre a man lying down, or even kneeling, behind a small bush or rock ; in fact, the infantry soldier is here almost absolutely safe from sabre cuts, but not so from a lance thrust. Even when an enemy is sufficiently cunning to lie still and feign death, it is easy for the lancer, without checking his horse, to drop his point into a body that he suspects to be capable of getting up again and firing into his back after he has passed.

Besides the want of a carbine, which I dismiss as obviated by the introduction of "scouts," other objections which have been brought forward against lance-armed cavalry are—first, that the sword is more effective in a regular *mêlée*. True, but if lancers charge compact and close in the fashion I have urged, and also if every lancer devotes his attention to spearing the man immediately in front of him, without thinking particularly whether the lance will stick in his body or not, *there will not be much of a mêlée afterwards*. After all, it does not matter so very much if a lancer does lose his weapon in this way ; for, unlike a sword, a lance can, or ought to be able to, be relinquished instantly, and he has then his sabre to fall back upon. If the enemy are overthrown at the first onset, which is of course the great object, there will probably be no great difficulty in afterwards recovering any lances that may have been left in foemen's bodies. Of course, a lancer never thinks of relinquishing his weapon intentionally ; if engaged in a close *mêlée*, he makes a free use of both ends, and endeavours to clear himself from the press. Secondly, the lance has been objected to on account of the skill required for its effective use. A strange objection, which, if applied to all arms, would cause the Martini-Henry to give way again to old Brown Bess. Is the rival sabre of much avail in unskilled

hands? Of course, skill is required to make the lancer formidable to his enemies, but the use of this weapon is not more difficult to acquire than that of any other—all depends on instruction and practice. On the whole, then, it would appear that the lance, in hands that can use it, is deserving of the highest respect, and that it would be well if the number of our lancer regiments was increased.

The Lance.—Probably the weapon itself is capable of some improvement. The “improved lance” of Lieutenant and Adjutant Dynon, an officer well known in the service, was balanced at two-thirds of its length, instead of in the centre. The longer a lance is the better, provided it is not unwieldy, and this arrangement gives six feet of useful length instead of four and a half, without increasing the size or weight of the weapon. A form of lance-head similar to that of the Indian (Deccan) hog-spear has been recommended. This shape, resembling a narrow laurel leaf, is the product of years of experience, and it combines the greatest facility for penetration with equal ease in withdrawing the blade after the thrust. Every old hog-hunter knows that spears are frequently sent through and through a boar, and again withdrawn easily as the sportsman gallops on. It is probably as strong as the regulation shape, but the mode of fastening to the shaft might be improved on.

In lance-armed regiments the officers also should carry lances.

The Sabre.—British cavalry are all armed with the same sword, technically known as the light cavalry sabre. It is all in all a good weapon, and considerable pains was originally taken to fix on the best pattern for the blade. It is slightly curved, which is supposed to be beneficial in cutting, but the curve is small, in order that the power of using the point, which is by far the most formidable method of fighting, may be retained.

It appears to me that the curve in the blade is of very little benefit in the way of cutting, while it decidedly militates against straight thrusting. A good, heavy, and well-curved blade is certainly the best for cutting, particularly when used in Asiatic fashion;* but the slight curve in our regulation sabre can only assist the cutting power in a very small degree, while there can, I think, be no doubt that a perfectly straight sword is most fitted for delivering point; and as it is this practice which should be chiefly inculcated, it would seem proper to have a weapon as well adapted for it as possible. Cutting may be considered a secondary object. It is only at the instant of first shock that a man should avoid using the point (this for reasons well known to every cavalry officer); in the *mêlée*, or in single combat, to thrust rather than to cut should be his aim. Even for the latter purpose it is difficult to see why the straight blade should have been so entirely abandoned. Our ancestors, whose hands were constantly on their sword-hilts, always wore straight blades. Rupert's Cavaliers and Cromwell's Ironsides were not bad cavalry; they all had straight swords, and used them sometimes with tremendous effect.

Let us leave the curved blade to Turk and Tartar, who never point, and thoroughly understand how to use their peculiar weapon to the greatest advantage: the straight sword is fittest for the European trooper.

It is not, however, of any avail to argue about the best form of sword-blade, when measures are taken to prevent the swords from being of more use to the unfortunate men who carry them than a common stick. I use the word

* Asiatics always use a very small hilt, so small that the wrist cannot play. They keep the arm straight, and cut from the shoulder. Try this, and you will find it is impossible to help "drawing" the blade to a certain extent. They cannot point, and never attempt to guard a blow with their own sword.

“prevent” advisedly, because for forty years or more has one writer on these matters after another declaimed against the marvellous folly of the present arrangements. The authorities must, therefore, be perfectly well aware of the nature of the course they continue to pursue.

The infantry soldier of the day is armed with a beautiful and delicate arm, and much pains is taken to impress on him the necessity of preserving from injury the weapon intrusted to his charge. Numerous minute regulations set forth the care with which the rifle is to be treated. If the soldier even lets down the butt with a bump when “ordering arms,” he is liable to punishment. This is all as it should be; but suppose that, instead of issuing these wise regulations, the authorities had only concerned themselves with the outward appearance and polish of the arms, and moreover, let us suppose, had directed a steel washing-rod to be carried in each rifle-barrel, which by jolting and rattling about would of necessity destroy the fine edges of the rifling, and so render the weapon almost useless. The sabre of the dragoon is in effect of as much importance to him, as the rifle is to the foot soldier. It is of infinitely simpler construction, easier to clean, and easier to repair. It is, perhaps, for these reasons that the authorities have decreed that this weapon, the effective wielding of which is the primary object of all the costly feeding, clothing, drilling, and training of both horse and man, shall be *always* in a more or less ineffective condition. I say *always*, because if, when on service, the sabres were sharpened every morning (which is absurd), an hour’s rattling in the steel scabbards would render them as blunt as ever.

A blunt sword is like a rifle, the rifling of which has been destroyed.

The steel scabbard, the cause of so much well-founded

complaint, and still retained by the British cavalry, has not one single point in its favour. Thirty years ago General Sir Charles Napier wrote—

“The cavalry steel scabbard is noisy, which is *bad*; heavy, which is *worse*; and it destroys the weapon’s sharp edge, which is *worst*. The native wooden scabbard is the best.”

Any one of these objections ought to be conclusive, more especially the last, which is absolutely fatal; but with all together it is, to an ordinary mind, quite incomprehensible how the steel scabbard, in its present form, can be allowed to remain in the service.

The dragoon’s sword should, then, be straight, broad rather than narrow; the blade 36 inches in length, and “razor-edged from heel to point;” weight of the weapon rather heavier than at present, perhaps as much as 2½lbs. The hilt should not be too large, and it is of great importance to have the grip made rather flat, *i.e.*, of oval not round section, in order that when in the wielder’s hand the blade may fall naturally true. The scroll hilt, now abandoned, is probably superior to the open one. At least, it protects the hand more effectually—no small advantage—and balances the blade better.

The scabbard should be of wood or leather, the former for choice. A wooden lining to the steel scabbard would be a great improvement, and would please those who approve of that instrument of mischief on account of its *appearance*. It has, however, the defects of increased weight and expense. A wooden scabbard, made of two thin pieces bevelled off inside, and put together so that when sheathed the sabre’s edge touches nothing, is the best. The elastic slips of wood clip the blade between them, and hold it steady. The whole is covered with leather, and shod and bound with steel. It is strong, light, and cheap,

quite noiseless, and perfectly preserves the weapon's edge. They wear well. I have seen some of this sort, belonging to a corps of native cavalry employed on the North-west Indian frontier. They had been in more than one campaign, and had seen a deal of rough work on the border outposts, etc.; yet many were 20 and 30 years old. The leather was renewed every four or five years at a trifling expense. The steel shoe must be securely fastened on; if this is carelessly done, it is of course liable to come off. A strong wooden scabbard for a dragoon's sword would weigh about $1\frac{1}{2}$ lb. to $1\frac{3}{4}$ lb., whereas a steel regulation scabbard weighs 2 lbs. 3 oz. The total weight of the dragoon's sword and scabbard, as proposed, would be 4 lbs. 4 oz., against 5 lbs. $10\frac{1}{2}$ oz. as at present.

That of the lancer and hussar might be shorter and lighter, weighing, with scabbard, about 3 lbs. 12 oz.

Fire-arms.—By far the most important of fire-arms used by cavalry would be the rifle of the regular "scouts" or skirmishers, supposing such a class to be introduced. I have before remarked that a repeating arm appears most suitable. It is nearly certain that such will be the arm of the future for all classes of soldiers, but so far as I can ascertain, no good military weapon of this sort has as yet been produced. They were, I believe, used in the American war, and are in existence in small numbers in several armies, but do not yet appear to have reached such a stage of perfection as to warrant their general introduction. The "Winchester" is, I am told, the best extant, but its mechanism seems too delicate and its trajectory too high for it to be really serviceable as a soldier's weapon. It would, however, be well worth the while of Government to institute an inquiry into the merits and demerits of this class of fire-arms, and a prize offered for the best military arm of the sort might, perhaps, result in the production

of a really valuable weapon. At present manufacturers seem to have devoted themselves to getting as large a number of reserve shots as possible,* but this is by no means the highest desideratum from a military point of view; eight or ten cartridges in the magazine would be a good reserve for all practical purposes, and this would allow of a longer cartridge being used, containing a larger charge of powder. It would be highly desirable that the arm should take the same ammunition as the ordinary rifle of the infantry soldier.

At present "scouts,"† if introduced, would be best armed with the regulation Martini-Henry.

With regard to carbines, that carried by British cavalry is pretty certain to be a good one, and no more need be said about it. The lancer's pistol should certainly be a revolver. Why should not a service revolver be issued to lancer regiments and to all horse and field batteries (at least, to drivers and non-commissioned officers), also to sergeants and trumpeters of dragoons and hussars, and to such officers as might choose to equip themselves with it at their own expense?

Dress and Personal Equipment.

Much nonsense is talked at times about this or that looking well or the reverse, soldierlike, or unsoldier-like. As a fact, appearances are almost entirely a matter of custom. Whatever the eye is accustomed to, we are apt to think is all right. As to the dress of soldiers, whatever is neat and not absolutely repulsive in colour, looks well; and whatever is good of its kind, and mani-

* The Winchester carries fourteen cartridges in its magazine.

† Scouts in the sense I have used the word in the previous chapters, i.e., a separate class of rifle-armed skirmishers.

festly well adapted to the purpose for which it is intended, is emphatically soldierlike.

The head-dress of cavalry of every sort ought, I think, to be a helmet. It resists sword-cuts, and appears almost equally well adapted to every climate. The experience of many officers shows that one can be worn with tolerable comfort under a hot Indian sun. The polished metal reflects the rays, and the helmet feels cool outside, even if it has been exposed for hours.

The present head-dress of the lancers is certainly picturesque, but it has the defect of leaving unprotected the back of the head—a part, however, which should be carefully guarded both from sun and sword stroke. The lancer “cap” (or whatever it ought to be called) is, I believe, an imitation of the national head-dress of the Poles, and may be consistently worn by a man who is still called a Hulan or Uhlan, and is very likely of Polish birth, but seems rather out of place on the head of a born and bred Englishman.

The lancer helmet might be of steel, a spike being substituted for the plume of the dragoon.

I think a neat light helmet might advantageously replace the hussar’s busby—another exotic which has taken root in the British service.

Now that a helmet is about to be issued (1876) to the whole of our infantry, there can be hardly any reason for retaining the anomalous and not very serviceable head-dresses of our so-called light cavalry. It is to be hoped, however, that the authorities, in seeking after new patterns, will have regard to comfort and utility, as well as to appearances. For a really good pattern of a fighting head-dress, look at that which was worn by Cromwell’s troopers! It has certainly the defect of being neither German nor French, but that might for once be overlooked.

Every one, I think, except a few who worship appearances, would like to see the men's body-clothing somewhat looser and easier than it now is. A mounted man is, and ought to be, tight about the legs, but if he is to fight, give him lots of room to move his arms, and full play for his chest and internal organs. Some day I hope to see the British soldier with only one dress—to be his full dress when new and his undress after two years. This is what is really wanted, and it would much save the men's pockets. I think this suggestion has been made at least once before.

The new pantaloons and boots are a great improvement on the old booted overall, although the latter was not an uncomfortable leg-dress. Care should, however, be taken to get a really good pattern for troopers' boots, or they will cause the wearers much discomfort. If any one will take a top-boot by a good London maker, he will see with what skilful care it is made to bag out above the heel. This is to allow the horseman to bend his ankle and keep his heel down when in the saddle; it also makes a vast difference in the ease with which the boot is put on and taken off. A boot may be made very roomy above the heel without at all injuring the appearance, and such boots are, *cæteris paribus*, the most comfortable. When, however, the new military boot was introduced, this point was neglected—purposely, I believe, because it was supposed to be “unmilitary,” or not smart enough! In consequence of this, the men found their boots unpleasant to wear and impossible to get out of when a little wet. Loud were the outcries which followed, and some people, without reflecting, condemned the boots *in toto*. It is to be hoped that, defects in the pattern having been found out by experience and remedied, there will be no more complaints of this sort.

It is, however, true that a high boot when wet is always rather difficult to remove, and also to put on again. To .

provide a perfect remedy for this is difficult. It would probably be the best plan to adopt a boot on the principle of the "Field" boot; this possesses the additional advantage of being suitable for dismounted work. It should, of course, be made light, and perhaps need not be so much split up in front; a few trials would determine what modifications are necessary to convert it into a suitable leg-dress for the cavalry soldier. Boots on this plan can be easily and quickly taken off and put on, whether wet or dry; and, more than that, by simply loosening the lace, a man can sleep in his boots with comfort. If well and neatly made, I do not think any but a prejudiced eye would be likely to object to their appearance.

The Hessian style of boot is very nice and neat to look at, but I question if, for real utility, they ought not to come higher up the leg, like Jack or Napoleon boots. In riding through woods or scrub, or the particularly thorny jungles that one sometimes meets with abroad (and it must be remembered that cavalry will have to make up their minds to go now-a-days into all sorts of places), it is a decided protection to have the upper edge of the boot level with the knee. The higher a boot is the drier it keeps a man's leg, and if a man's boot comes up and his cloak, or outer covering, down to his knees when in the saddle, that man will be as well protected as he can be in wet weather.

On the other hand, a high boot is not so convenient as a Hessian for dismounted service. It would, then, be better for the regular "scouts," and perhaps for all light cavalry, to wear the latter.

Spurs should decidedly be *buckled*, and not fixed spurs of any sort. Fixed spurs are simply dangerous to ride in; for if a man gets unseated, the fixed spur catching in the stirrup, or any part of the horse furniture, hangs up the unfortunate wretch, and death or very serious injury

is the result; whereas the buckled spur gives, or is torn off altogether, and the wearer escapes with little or no damage.

I think a greatcoat with sleeves is better than a cloak; it is not so heavy, equally warm and comfortable, and allows a man to use his sword, which he cannot do in a cloak. Fire-arms (except by vedettes) will only be used dismounted, and then, of course, the coat or cloak must come off.

The garment itself should be of waterproof material, not too heavy, and of such a length as to cover the man's knees when mounted.*

Gauntlets ought to be worn by all cavalry without exception. I do not mean merely a long leather glove, which is of little or no advantage except for show, but a real gauntlet to keep out sword-cuts, like that suggested by Nolan. Everybody is aware that a slight wound on either wrist must render the cavalry soldier helpless; and how can such be guarded against in a *mêlée*? The gauntlet need not be so long as the native one Nolan recommended. I have seen an excellent sort which are, or were, in use in some of the Indian irregular regiments: the hand is not unlike that of a cricketing glove, steel chains taking the place of indiarubber; the lower part of the glove is entirely made of chain-mail. These gauntlets are not heavy, allow of a perfect grip of the sword-hilt, and completely protect the wrist and forearm.

It is also important that scales, or something of that nature, should be re-introduced to defend the shoulders. A piece of curb-chain, five-eighths of an inch broad, sewn into the coat along each shoulder, would, I believe, save

* I am told a pattern of coat or cloak is now under consideration which will unite all the above *desiderata*, besides others which have not occurred to me.

many a poor fellow's life in battle. In addition to down-right blows, many of which are naturally aimed at this part, and which probably prove fatal if not guarded, cuts may often glance off the helmet, or even off one's sword, inflicting wounds sufficient to disable, if they do not kill. Nearly all the continental cavalries wear shoulder-guards of some description.

Method of Carrying Arms.

This involves the question of belts and accoutrements. Those who have studied the subject and are not prejudiced in favour of present arrangements can hardly come to any other conclusion than that the cavalry soldier is at present accoutred on a wrong principle. • I believe it to be a fact beyond all contravention, that the proper, *i.e.*, the best, method of wearing a sword is to carry it in the frog of a shoulder-belt or "baldrick."

It is not known who invented the present sling-belt, but a hundred years ago, when swords were commonly worn, and very much more frequently in use than at the present day, all classes of men, soldier and civilian alike, wore the sword in a baldrick. It is, in fact, the only way of carrying a sword with comfort in all situations, whether on horseback or on foot.*

With the present complicated sling arrangement the weapon bangs about, and cannot ride steadily, even when kept down by heavy sabretache. No sort of hooking up will prevent it being infinitely in the wearer's way when dismounted—a very serious objection now that all skirmishing will have to be conducted in this fashion. Another fault is, that the belt, sustaining the whole weight of the

* I may remark that the late Lord Clyde, when on service, always wore his sword in this fashion.

sabre and sabretache, must be drawn very tight ; this and the jolting of the sword is apt to strain the internal organs, and may even lead to serious disorders.

But carried in a baldrick, the sword rides steadily, does not inconvenience the wearer when moving rapidly, and is as little as possible in the way when he is dismounted.

The present pouch-belt, too, is a clumsy and uncomfortable concern, already discontinued in the most advanced cavalries. The trooper's ammunition can be most conveniently carried in one or two pouches * on the waist-belt ; and if the latter be at the same time relieved of the weight of the sword, the soldier would be greatly the gainer in the matter of comfort. The ammunition is much more easily got at, and a larger quantity can be carried than at present. The belt with pouches must, of course, be always worn outside the coat or tunic. Vedettes could also wear it outside the greatcoat, if necessary.

Many experiments have been tried as to the best way of carrying the carbine, and very different methods obtain in various cavalries. There is, however, no method which does not seem to have its own defects, and so I suppose it must always remain, from the natural, and never altogether to be got over, inappropriateness of a gun on a horse.

Admitting, however, the necessity for the fire-arm, it only remains to arrange for its conveyance in the most convenient manner. All the methods of carrying the carbine fall naturally into two classes : in the first it is attached to the horse, in the second to the man. The defects of the former are, that if the trooper is unhorsed, he is deprived of his fire-arm at the very time when it would be most useful to him for his own defence ; he is in the same predicament if his horse is killed, and happens to fall on his off side. Also, the men cannot dismount

* They might hold 15 rounds each.

instantly if required to use their fire-arms on foot. The great objection to the second class of methods is, that the man is fatigued with the additional weight of the weapon, while the horse is not in any way relieved. This is a serious objection; and no doubt, when the man carries the carbine, the sabre should be attached to the saddle, as is done in the Italian cavalry.

It is quite probable that this principle is the most correct, but the question is one which can only be satisfactorily settled by actual trial and experiment. In the mean time our present system, though not perfect, is not a bad one, and we have nothing to complain of.

We see that there is a choice of ways of carrying a carbine, but when it comes to arming skirmishers with a full-sized rifle, the question of carrying *that* is limited by possibilities. The only plan I have ever heard of which appears really satisfactory is that called the "Namaqua bucket," or some modification of it. It is fully described in Galton's "Art of Travel," page 241. A bucket, deep enough to contain the stock as far as the small of the butt, is fixed on the off side of the saddle, below where the wallet now is. The rifle is placed in this, hammer to the front; the barrel passes under the right arm, the bucket being adjusted for that purpose. A thigh-strap may be used for increased security, if thought advisable. Mr. Galton says: "The gun is perfectly safe: it never comes below the armpit, even in taking a drop leap: it is pulled out in an instant by bringing the elbow forwards in front of the gun and then backwards, pressing against the side; by this manœuvre the gun is thrown to the outside of the arm: then, lowering the hand, catch the gun as near the trigger-guard as you can, and lift it out of the bag (bucket). Any sized gun can be carried in this fashion, and it offers no difficulty in mounting or dismounting."

Galton's
"Art of
Travel."

The pistol, or revolver of the lancer, should always be carried on the person : about this there can, I think, be no doubt. It would be in a holster, attached to the waist-belt on the left side, with an ammunition pouch containing 25 rounds on the right.

We have now run over the principal articles of dress, accoutrements, etc., and must turn to the more difficult and important question of horse equipment.

Saddlery and Kit carried on the Horse.

Here the great point for consideration is how to save weight to the utmost possible extent. Nothing whatever ought to be carried upon the horse, but what is absolutely essential for the efficiency of man and beast when on actual service. The saddlery itself ought to be lightened to the utmost extent consistent with a sufficient degree of strength and durability, and the kit must be reduced to the barest necessities. The governing maxim that *dead weight means weakness* will probably be subscribed to by every cavalry officer and soldier, but in practice it is sadly disregarded. Not even a strap, or a buckle, or the smallest article of any description should ever be ordered without a firm conviction, arrived at after the most careful consideration, that it cannot possibly be dispensed with. The question of weight should be paramount and all-pervading. Nothing can be worse than the system of carrying a lot of things because they are *likely* to be useful, or because, after all, they *don't weigh much*. It is in this way that cavalry weights have come to be what they are ; ounces run up to pounds, and pounds to stones, until the unhappy horses are so overloaded that the power of the arm is lost, and cavalry, which on the field of battle might paralyze the foe by the swiftness of its attacks, is reduced to a condition of helpless and inglorious inactivity.

In the first part of these notes, I have endeavoured to bring out how absolutely necessary it is for the very existence of cavalry in the present day that their horses should be able to do what no other horses except troop-horses find difficult, and that is to gallop a mile or so at a by no means extravagant pace, without being utterly blown and exhausted. The only way in which they can be rendered capable of accomplishing this feat is by reducing their load to something which is known to be within—if only just within—the powers of a horse, not of a camel or an elephant, to carry.

On the opposite page will be found the weights of the present saddlery, kit, etc., as given in the "Soldier's Pocket-book,"* in juxtaposition to which I have placed a similar list, with the articles and their weights as I think they might be; and it will be convenient if I take the various items as they occur in that list.

First, as to saddlery. A saddle with its ordinary appurtenances—girths and stirrups, and a bridle—are, of course, absolute necessities. The service saddle is, take it all round, a good one; but there is, to the ordinary mind, no doubt but that its weight might easily be lessened. One stone, or 14 lbs., for saddle and pannels alone seems to me sufficient. The pannels of a military saddle give so large a bearing surface that the saddle itself can be made light, without any of the disadvantages which attend the use of too small saddles of the hunting pattern. The peak of the present saddle is needlessly high, which prevents the man getting down his hand (of which more anon); the flaps, also, might be made smaller.

* I prefer taking the weights as laid down by Sir G. Wolseley to those obtained from any other source known to me; for if these are not precisely what cavalry horses are at this moment carrying, it is reasonable to suppose that what is stated by so great an authority is, at all events, what the Horse Guards intend them to be in the future.

ARTICLES CARRIED ON HORSE AND
HORSE EQUIPMENT. ("Soldier's
Pocket Book.")

| <i>Saddlery.</i> | st. | lb. | oz. |
|---------------------------|-----|-----|-----|
| Saddle and pannels | 1 | 3 | 8 |
| Stirrup-leathers | 0 | 0 | 11½ |
| Stirrups | 0 | 2 | 4 |
| Breastplate | 0 | 1 | 3 |
| Sarcingle | 0 | 1 | 0 |
| Baggage-straps | 0 | 0 | 8½ |
| Pair of wallets | 0 | 2 | 0 |
| Shoe-cases and shoes..... | 0 | 2 | 8 |
| Hide rope | 0 | 0 | 7½ |
| | 2 | 0 | 2½ |

Equipment on Saddle.

| | | | |
|------------------------|---|---|-----|
| Numnah | 0 | 2 | 10½ |
| Sheepskin | 0 | 5 | 8 |
| Hoof-picker | 0 | 0 | 11½ |
| Picketing-peg | 0 | 2 | 0 |
| Corn-sack | 0 | 1 | 14 |
| Mess tin | 0 | 1 | 6 |
| Nose-bag | 0 | 1 | 3½ |
| Hay-nets | 0 | 2 | 6 |
| Greatcoat | 0 | 7 | 9 |
| Waterproof cloak | 0 | 3 | 8 |
| | 2 | 0 | 2½ |

Articles in Wallets.

| | | | |
|--------------------------|---|---|-----|
| 1 pair drawers | 0 | 0 | 14½ |
| 1 „ socks | 0 | 0 | 5 |
| 1 towel | 0 | 0 | 7½ |
| 1 flannel shirt..... | 0 | 0 | 10 |
| Forage cap | 0 | 0 | 5 |
| Hold-all | 0 | 1 | 0 |
| 1 pair ankle boots | 0 | 2 | 7 |
| 1 shoe-brush | 0 | 0 | 3¼ |
| 1 horse-brush | 0 | 0 | 8 |
| Curry-comb..... | 0 | 0 | 12 |
| Oil tin | 0 | 0 | 4 |
| Tin of blacking | 0 | 0 | 5 |
| Account-book | 0 | 0 | 2 |
| | 0 | 8 | 3½ |

Total 4 8 8½

ARTICLES THAT ARE ABSOLUTELY
NECESSARY, BEING ALL THAT NEED
BE CARRIED ON THE HORSE.

| <i>Saddlery.</i> | st. | lb. | oz. |
|---|-----|-----|-----|
| Saddle and pannels | 1 | 0 | 0 |
| Girth | 0 | 0 | 10 |
| Stirrup-leathers | 0 | 0 | 11 |
| Stirrups | 0 | 1 | 8 |
| Breastplate (hunting) ... | 0 | 0 | 12 |
| Sarcingle..... | 0 | 0 | 10 |
| Baggage-straps | 0 | 0 | 8 |
| Cloak „ | 0 | 0 | 5 |
| Pair of side-bags and shoe-cases combined... | 0 | 6 | 0 |
| Numnah | 0 | 2 | 0 |

1 13 0

Equipment on Saddle.

| | | | |
|----------------------------|---|---|----|
| Greatcoat | 0 | 7 | 0 |
| Blanket | 0 | 5 | 0 |
| Picketing-rope (double)... | 0 | 1 | 8 |
| „ pegs | 0 | 3 | 0 |
| Corn-sack | 0 | 1 | 6 |
| Mess tin | 0 | 1 | 6 |
| Nose-bag | 0 | 0 | 12 |
| Forage net (one) | 0 | 1 | 0 |

1 7 0

Articles in Side-bags.

| | | | |
|------------------|---|---|----|
| Forage cap | 0 | 0 | 5 |
| Brush | 0 | 0 | 8 |
| Curry-comb..... | 0 | 0 | 12 |
| Towel | 0 | 0 | 7 |
| Hold-all | 0 | 1 | 0 |
| | 0 | 3 | 0 |
| Total..... | 3 | 9 | 0 |

It will be observed that Sir G. Wolseley's saddlery includes neither girths nor crupper. As to the latter, it is well omitted, being, as most people have now agreed, useless, and its weight, about 12 oz., may therefore be saved. Girths, however, or at least one girth, are advisable. It is true that the surcingle, the strongest known method of attaching the saddle to a horse, would probably suffice by itself to keep the two together under all circumstances; still, in a point of such importance, it is as well to have something additional to rely on. One girth, though, is quite enough, and would weigh about 10 oz. Stirrup-leathers and stirrups naturally come next. The latter are far too heavy—a pound and a half is ample for them.

The present breastplate is so contrived that it cannot well prevent the saddle slipping, attached as it is to the peak; the hunting breastplate, however, being designed and used by practical men, does perform its office, and is also lighter. I have already said all I intend about things being "soldierlike," or otherwise. No bosses or ornaments should be permitted. The surcingle need only weigh 10 oz. and yet be strong enough for anything. Baggage-straps I put at 8 oz. Wallets must be condemned as most unhandy contrivances. In the first place, all dead weight should be carried as low as possible, as it then rides so much more steadily; but passing over this, they are certainly most objectionable, in that when the cloak is placed over them a pack is formed so high that it is impossible for the rider to get down his bridle-hand. Now, it is absolutely necessary for a man riding anything but a steady and well-broken horse to be able to get his hands down on occasion. All horses are not steady or perfectly broken; and I suppose in war time regiments may have to put up with very raw remounts indeed, and such horses *cannot* be properly ridden with the present

awkward arrangement in front of the horsemen. In India, when the men are mounted on small Asiatic horses, the evil is much increased, and the appearance also becomes ludicrous; nothing but a head and part of a neck being seen in front of the saddle. It is probable that most cavalry officers have read Major Dwyer's "Seats and Saddles," etc. In pages 101 and 102, and also at page 125, will be found certain remarks on this defect, couched in language more forcible, and from a standpoint more scientific, than I can pretend to.

The best way of carrying the very few articles that must needs go upon the horse is to have them in small saddle-bags (tache-pockets). They might be made with a shoe-pocket at the back of each bag, and on the upper side a receptacle for cartridges. Nails might be carried in each; also a hoof-picker ($1\frac{1}{2}$ oz.) in the near, and an oil tin (4 oz.) in the off case. Including these and the shoes, I calculate the weight of the pair of bags would amount to about 6 lbs.

A numnah (or numdah) I consider a necessity. Unfortunately, there must be something under the saddle, or the covering of the pannels gets hard and wears out. There might, however, be a strap passed along under the seat from front to rear, to keep the numdah well up into the fork of the saddle, otherwise the advantage of a free current of air along the horse's back is lost. The numdah had better not be too thick or made of coarse felt. Fine felt absorbs moisture just as well, if not better than coarse, and lasts longer. English felt is not always the best. The numdah need not weigh more than 2 lbs.

A sheepskin I omit altogether. It has certain advantages and certain disadvantages, the former, perhaps, predominating until its $5\frac{1}{2}$ lbs. of actual weight are put into the scale; then the advantages, such as they are, kick the beam.

In the calculation of weight here copied, the author of the "Soldier's Pocket-Book" has omitted the bridle; and as this is in strict conformity with racing law—the only code that deals with the weights carried by horses—I have done the same. A military bit and bridle, however, is a very different thing from a racing snaffle; and when the weight amounts to $7\frac{1}{2}$ lbs. or more, I have no doubt the horses feel it. It is not within the scope of these notes to say anything about biting. I must refer my friends to Major Dwyer for that, but it is allowable to remark that our bits are unnecessarily large. I should think a pound might be taken off and the bits be more suited than at present to average horses. No doubt, also, the head-stall might be somewhat lightened. Let us therefore call the weight of the bridle 6 lbs.

The above includes all the saddlery proper. Leaving out the bridle, it weighs 1 st. 12 lbs. 12 oz.

We now come to the consideration of what amount of kit is admissible for carriage on the horse's back. It is stated above that only such articles as cannot possibly be done without should be included, and I hope to show that, by a strict application of this principle, the horse's burden may be still further decreased. In making our calculations we should bear in mind that it is a sad waste of force to insist on the soldier carrying about with him a quantity of clothes and other things which, however convenient, are not "necessaries," except in the technical sense; for, even in the field, in an ordinary way, the men are not separated from the baggage, conveyed in light carts or on the pack animals of the regiment, for more than a single night; and if, by reason of hard service, the light baggage of the corps is not able to get up to it for a considerable time—say, three or four days—we know very well that such loss is not very much felt, because the same circumstances that prevent the

baggage from coming up will generally cause every individual to be so fully employed that he will feel himself lucky if he can find time and opportunity for eating and sleeping: as for changing or washing his clothes, or making any attempt to furbish himself up, that will be manifestly out of the question. Consequently we may at once dispense with the valise, which, indeed, seems for some time past to have had no friends. Sir Garnet Wolseley also omits it entirely.

With regard to the remaining articles, I think the *indispensables*, as distinguished from the mere "necessaries," are, first, an additional covering for the man himself, in the shape of a cloak or the greatcoat before described, and with this may be coupled, as equally important, a blanket for the comfort and protection of the horse. Picketing-gear must also be taken; also nose-bag, corn-sack, mess tin, and forage net; and, besides these, there will be a few things to go in the side-bags.

The greatcoat will weigh about 7 lbs.; the blanket 5 lbs. I think a good light blanket can be got of this weight. As for picketing-gear, it may be as light as possible, but the system ought certainly to be individual. As for picketing by ranks to a long rope or chain, it may do very well for artillery or the train, where, as Sir Garnet Wolseley says, the rope can be stretched between waggons, and where the same number of horses are constantly together; but with cavalry, circumstances are totally different. No arm is so liable to be broken up into small parties and detachments, and it is indispensable that every little outpost or escort should be able to picket its horses with facility and on a uniform plan. At least two pegs and a rope as a heel-rope are necessary for each horse. I allow 1½ lb. for heel-rope and fetlock-chain, including shackle and fetlock-strap. Pegs may be of wood or iron. The

latter are stronger, smaller, and in every way more convenient. Unfortunately they are heavy, the smallest useful size weighing $1\frac{1}{2}$ lb. each. I reduce the weight of the corn-sack to 1 lb. 6 oz. The service mess tin also weighs 1 lb. 6 oz. A nose-bag of blanketing or any strong coarse stuff, with no leather about it, only weighs 12 oz., and is as good as any other kind. One forage net per man is ample; it need only weigh 1 lb.

There now only remain the articles to be carried in the side-bags. A change of clothing appears to be inadmissible for the reasons before stated. Ankle-boots must go with the clothing. It is to be hoped a man's waterproof greatcoat would keep him tolerably dry; if otherwise, I cannot see that the change of underclothing now carried in the wallets would be of any benefit as long as the cloth uniform remained wet. The ankle-boots I confess I regret, but the boot I have suggested would not, I think, be found uncomfortable, even if worn for several days and nights together. I allow a forage cap (5 oz.), a hold-all (1 lb.), and a towel ($\frac{1}{2}$ lb.). If a man has a piece of soap about him he may always enjoy the luxury of a wash, provided there is time and water to spare. The shoe-brush and tin of blacking are not wanted; the horse-brush (8 oz.) and curry-comb (8 oz.) certainly are.

A water-bottle is included in the present field equipment. It is, however, very heavy, and holds but little. In almost any part of Europe the men would have sufficient opportunities of satisfying their thirst by the way; in Eastern countries, however, the case is different, and there all cavalry ought to be provided with a little goat-skin, or "mussuk," as it is called, of ordinary leather. One of these holds upwards of a gallon of water, and weighs when full 6 lbs. It is carried slung under the horse's belly, the girth preventing it touching the skin.

I should propose to carry the reduced kit as follows:—The greatcoat, folded flat, to be laid over the front of the saddle, the centre of it in advance of the peak, and to be secured with three straps (5 oz.). The pegs to be in a leather case or pocket attached to the forepart of the off pannel, slanted forwards, and with the mouth in such a position that the pegs may be withdrawn without unfastening the greatcoat. The rope to be carried on the near side; it would be doubled to a length of about 20 inches, one end being fastened to the ring on the peak of the saddle, the other would be passed a dozen or more times round the folds and secure them; the rope thus made up would be passed under the near side cloak-strap and kept steady. The side-bags would, of course, be carried one on each side of the saddle, suspended to “D’s” in the usual fashion. The blanket, rolled, would be behind the saddle, the corn-sack and nose-bag underneath it; the whole secured by the baggage-straps.

The total weight of the saddlery and kit as proposed is 3 st. 9 lbs., being the same for all cavalry. The man’s arms, accoutrements, and ammunition weigh—for the dragoon, 1 st. 5 lbs.; for the hussar, 1 st. 3 lbs.; for the lancer, 1 stone. The dragoon himself, in his uniform coat and pantaloons, weighs 11 st. 7 lbs.; the hussar, 9 st. 7 lbs.; the lancer, 10 st. 7 lbs.; to which half a stone may be added in each case for helmet, boots, and spurs.

Two days’ cooked rations add 4 lbs., and one day’s corn 10 lbs., to the above.

The total weight of the dragoon completely and fully equipped for service, with food and ammunition complete, will be 18 stone; of the hussar, 15 st. 10 lbs.; of the lancer, 16 st. 3 lbs. Without rations and corn the weights would be one stone less all round. The scouts of each would probably ride about half a stone heavier.

In enlisting recruits, great attention should be paid to their *weight*. Fix the height and chest measurement at what you please, but let there be also a standard of weight, which should never be exceeded. Lads of 18 or so always fill out and increase in weight between that age and 25. Our recruits are mostly drawn from the poorer classes, and regular meals of good food, coupled with the care which is everywhere taken of the soldier's health, often causes them to develop in size and weight in a very marked degree. The maximum weight for dragoon recruits should, I believe, be about 10 st. 10 lbs., that for hussars 9 stone, and for lancers 10 stone. In addition to this I will go a step further, and propose that when cavalry soldiers much exceed the average weight of their class, they should be drafted into the next one. Thus, a hussar who reaches 10 st. 7 lbs.,—the average weight of the lancer—should be transferred to a lancer regiment, and a lancer reaching the average weight of a dragoon should be sent to the dragoons. Men of the latter class who exceed 12 st. 7 lbs. are too heavy to be cavalry soldiers at all—that is, they are too heavy to be properly mounted—and they might well be passed on, not to the infantry, as Nolan suggested, but to the artillery, who would be glad of such fine powerful men as gunners: being trained riders and disciplined soldiers, it would not take long to teach them their new duties, and the plan would appear to be equally beneficial to both services. Of course, men whose time had nearly expired, and also all non-commissioned officers, would be exempted from the operation of this rule.

Organization.

It ought to be clearly understood by all soldiers that questions of organization depend entirely on *tactics*;

that is to say, when it has been determined what are the tactics most suited to the present state of the art of war, such an organization ought to be adopted as will lend itself most readily to the recognized tactical system. To reverse this and endeavour to fit modern tactics to an obsolete organization, as is now being done in the case of the infantry, can only be attended with very unsatisfactory results. "New wine should not be put into old bottles."

If, therefore, the statements and so forth contained in the preceding chapters are but moderately correct, a great change in the organization and equipment of British cavalry is absolutely necessary; it follows, in fact, like the corollary of one of Euclid's propositions.

Nearly all the cavalries of Europe have been more or less reorganized within the last ten or fifteen years; not, certainly, to the extent that would appear necessary for the British horse, for two reasons—first, because so advanced a tactical system as that which I have ventured to propose is not yet fully recognized among them; secondly, because their previous organization was far more perfect than ours is at the present moment.

The happily insular position of England, which almost precludes the possibility of her being forced into a land war, has, as we all know, caused her army to be comparatively neglected. The British army much resembles one of our own old country houses, where specimens of the handiwork of the builders of half a dozen different epochs may be discovered in the same edifice. Here a bit of Tudor, there a bit of Gothic or Renaissance; the whole not a little overlaid with Georgian stucco, and green with the ivy which has grown up in our peaceful Victorian era.

The fact is, the armies of every Great Power have been reorganized or rebuilt at least half a dozen times within

the last hundred years ; whereas ours, although alterations have necessarily taken place in the same time, has received its improvements bit by bit, almost invariably in imitation of some foreign model, and never on any well-considered or comprehensive plan.

It is true that the reorganizations of foreign armies have in most cases been undertaken in consequence of some huge disaster, which has forced that particular nation to amend its military errors or suffer intolerable penalties. Let it be the prayer of every patriotic soldier that England as a nation may be brought to see the wisdom of getting her reorganization done, and that right quickly, before compelled thereto by some great national calamity.

To return, however, to the subject. Every system of organization depends on its unit. The unit of cavalry in the field, that is to say, the *tactical unit*, is the squadron. In every European cavalry, except that of England, the squadron is also the unit of organization. For it has come to be acknowledged as a principle in war, that the same men should always be under the same leaders, whether in quarters or on parade, in the bivouac or in battle. The importance of this principle can hardly be overrated, but it can only be carried out by making the tactical unit and the unit of organization one and the same body.

Now, in the British cavalry, the unit of *organization* is the troop (*i.e.*, half a squadron).

The effect of this is, that the men on parade (and consequently in action) are not under the command of their own officers ; for the most fortunate squadron can only have for its leader one who really commands a half of itself. And not only is this the case, but sometimes a certain humbug of seniority causes the oldest captain to take the right squadron of the line, and so on ; so that

men may often be led into action by officers of whose very names they are ignorant, the same officers being certainly equally ignorant with regard to those they lead, and that mutual knowledge and confidence on which so much depends, and which makes difficult duties comparatively easy, is sure to be wanting. Another, though minor fault, is the unequal positions of officers of the same grade. When all the officers are present, half the captains are leading squadrons, the other half commanding troops under them; the remaining troops being led by subalterns.

The system advocated by Nolan was simple and intelligible, and obviated the defects above alluded to. He made the troop the tactical unit, as well as that of organization. This, however, would break up a regiment into too many small bodies, and would contribute to fix the British captain in his present unfortunate position, already far beneath what he ought to occupy. Besides, the squadron is universally recognized as the tactical unit; and, as before said, organization ought to be fitted to tactics, and not *vice versâ*.

I have lately heard * that a further attempt is to be made to patch our existing organization to suit modern requirements, by giving an increased number of majors to every regiment of cavalry and battalion of infantry, in order that they may command squadrons and double companies (the infantry tactical unit). It is sincerely to be hoped that so extraordinary a mistake will never be perpetrated. The idea could only arise in a mind totally ignorant of the first principles of organization. A major is a *field officer*; that is to say, one whose rank entitles him to command several units *in the field*. The proper commander of a unit in all situations is a captain. The size of the unit is beside the question; it should not, of course, be so large

* March, 1876.

as to be beyond the personal control and supervision of one man. Obviously it was a great error to give the rank of major to commanders of batteries—units of artillery. If the pay of these officers was too small, it might have been raised; if their commands were too large, *i.e.*, beyond their own personal control and supervision, they should have been reduced in strength; but to fling about field rank in this thoughtless manner, is to lower the value of all military grades—far too low already—and, in fact, to debase the coin in which the officer is principally paid.

If, however, our cavalry was organized by squadrons, and our infantry by companies of 200 to 250 men (four to a battalion), the commanders of these would have a position and responsibilities equal to those of the commander of a battery; and the rank of all alike should be that of captain.

I am aware that, as regards the cavalry, some feeble efforts have been made to introduce the squadron system. They have, however, come to nothing; for, unfortunately, “vested interests” intervened, and of course got the best of it. If an organization by squadrons is adopted, it is evident that only one-half the number of captains is requisite—a consideration one would have thought acceptable to an economy-loving nation. But when the system was actually attempted to be carried out, there arose from the disestablished ones such an outcry—joined in by the subalterns, who were apprehensive regarding their promotion—that this most necessary of all reforms was abandoned.

Nevertheless, I cannot but believe that a change to the squadron organization is inevitable, and now not far distant. When it occurs, a number of captains will, of course, become supernumerary, and would probably be placed on half-pay, unless they could be otherwise provided for.

As regards the subalterns, however, the operation of the new retirement scheme will prevent their prospects being injured, if, as seems almost certain, it is actually carried out in its entirety.

The Squadron.

The captain should be, in every sense of the word, the commander of his squadron, and should be directly responsible to the officer commanding the regiment for its interior economy, general well-being, and behaviour under all circumstances. He ought to have considerable powers of punishment, and also of *reward*; he should also have much more to do with the drill, etc., of the squadron than troop officers now have. He should certainly be consulted regarding the promotion of any of his men. He should not be interfered with in regard to small matters of detail. In view of his higher duties and increased responsibility, it would be proper to increase the pay of a captain commanding a squadron.

It is very important there should be a good number of subalterns; there is nothing worse than being left short of officers in the middle of a campaign. Three lieutenants per squadron is the least number that should be allotted, and there should be a sub-lieutenant in addition.

I have already (page 121) given an outline of the organization of a squadron suitable to an improved tactical system, and will now proceed to give the full detail, premising that each squadron would be divided into two half squadrons and four quarter squadrons. On parade it stands always in two lines, called as they may happen to be at the moment, "front line" and "rear line." Each line is divided into two subdivisions and four sections. Also, a squadron on parade is never to have less than 32 or more than 48 files.

The detail of a "quarter squadron" would be as under :

| | | | |
|----|---|------------------------|--|
| 42 | { | 2 sergeants | |
| | | 2 corporals | |
| | | 28 privates | |
| | | 1 trumpeter or farrier | |
| | | 1 shoeing-smith | |
| | | 8 scouts | { 1 non-commissioned officer and 7 privates |

The detail of a complete squadron (on a war footing) would be :—

| | | | |
|--|---|------------------|---|
| Horses, 170. Non-commissioned officers and men, 170 | { | 10 sergeants | } Of whom 2 sergeants, 2 corporals, 28 privates, are scouts. |
| | | 10 corporals | |
| | | 140 privates | |
| | | 2 trumpeters | |
| | | 2 farriers | |
| | | 4 shoeing-smiths | |
| | | 1 pay-sergeant | |
| | | 1 sergeant-major | |
| | | 1 sub-lieutenant | |
| | | 3 lieutenants | |
| Horses, 9. Officers, 5 | { | 1 captain | |

This organization is, I think, on a sounder economical basis than the present one. The proportion of non-commissioned officers is increased by a fraction, but the number of officers of the higher grades, as compared to the rank and file, is greatly reduced.

The rank of pay-sergeant should be an effective one, second only to that of the squadron sergeant-major, whose place he would fill in the absence of the latter. Both act as markers to the two lines of the squadron on parade, or as serre-files if sufficient officers are not present.

Shoeing-smiths are supposed to be effective soldiers, and so are saddlers or tree makers (one per squadron). The latter is included in the 140 privates.

In forming up for parade, care should be taken that the men of the various quarter sections are evenly distributed in both lines, and that they occupy corresponding situations. Thus the men of quarter squadron No. 1, under

Sergeants A. and X., would generally form the right or first section of the front line, and also the corresponding section of the rear line, Sergeant A. leading one section and Sergeant X. the other. This is the only way to obtain that close and intimate connection between the lines which is necessary to develop the full benefit of the system.

The reader will, no doubt, have observed that the full strength of a squadron is greater than it can ever stand on parade, since the total number of files is limited to 48. Thus the highest possible strength of a squadron on parade (irrespective of officers) would be: 1st line, 48 men + 12 scouts + 4 section leaders + 1 marker + 1 trumpeter = 66. Strength of both lines, $66 \times 2 = 132$; which, deducting farriers (2) and the squadron pioneers (10), would leave 26 rank and file over. I humbly submit that this is not a defect, but a positive advantage, since the number of men sick and on duty, or absent from other causes, would invariably exceed the number of men in excess of the maximum parade strength. Even if this were not the case, there can be no great objection to a regiment making up as many squadrons on parade as it can find men for, and we may feel quite confident that on actual service a "scratch squadron" would never need be made up from the overplus of men. In peace time we must also allow for the proportion of dismounted men, concerning which I wish to make a few remarks.

On service I think every man, without exception, should be mounted. Nothing is more likely to prove fatal to the efficiency of a cavalry regiment than overstrained economy in this respect. But for the expense I should advocate *spare horses*; for experience shows that campaigning generally knocks up more horses than men, and if a regiment is stinted in horses it will perhaps, after a month or two of rough work, have some difficulty in mounting a

couple of squadrons. If, however, a regiment is fully mounted, the work can be more evenly distributed, and a knocked up or weakly animal can be indulged with a rest, which may often be the means of preserving him for further service.

In time of peace, however, it is not absolutely necessary that every horse soldier should have a horse to himself. By dispensing with a certain number of horses, the pocket of the State is saved some expense without injuring the efficiency of the arm, *provided* the principle is not carried too far, and also that some system is adopted by which a whole corps may be instantly prepared for service on the outbreak of war. I think the largest safe proportion of dismounted men in a squadron would be—of scouts, 6; rank and file, 26; total, 32.

The squadron pioneers, as before suggested, would be ten in number—one non-commissioned officer and nine privates selected from the rank and file of the squadron. They should be thoroughly trained, effective soldiers, and would probably be taken in the first instance from men in their third or fourth year of service. The detail might be somewhat as under :—

| | | Weight of each tool. | |
|----|--|-------------------------|---|
| 10 | 1 Non-commissioned officer | | |
| | 2 Pioneers (shovel men) | 4 lbs. | |
| | 1 „ (pick man) | 5 lbs. | |
| | 1 „ (axe man) | 4½ lbs. | |
| | 1 „ (adze with hammer back) | 2½ lbs. | |
| | 1 „ (case of small tools) ... | 6 lbs. | |
| | 3 „ (without any special tool, but would carry powder, or gun-cotton fuzes for demolitions ... | 2 to 4 lbs. | In addition to the weights already laid down. |

The three men without a special tool would be the youngest or least skilful; they would hold the horses of the others when at work. They could also carry any extra tools or

apparatus that might appear necessary for the accomplishment of any particular task.

Men who had been brought up as carpenters, blacksmiths, and masons would naturally be selected as pioneers, whenever possible. The non-commissioned officers, and particularly the senior sergeant, who might rank as a staff sergeant, ought to be capable of imparting instruction to the men under them. All should receive a slight increase of pay, to be stopped in event of misconduct. Off-duty pioneers would, of course, be employed in the regimental workshops. With regard to their special duties, all the pioneers should be under the superintendence of a selected officer.

The Regiment.

A regiment is a collection of squadrons, the number of which has varied at different times and in different services. Four squadrons is allowed to be the best number for a regiment in the field, being a convenient union of strength and manageability, and this number (eight troops) is the normal establishment of a regiment of British cavalry.

Now, of all arms, cavalry is the one that is required to be in the most constant state of preparation for war, since it is generally a matter of vital importance for it to be pushed to the front at once, or, in our own case, to be present on the theatre of war in strong force at the very commencement of the campaign. The state of preparation in which the Prussians had their cavalry in 1870, enabled them to present to the enemy an elastic but impenetrable veil of horsemen, within which they accomplished the concentration and strategical disposition of their enormous armies with comparative ease and security, while the French remained in total darkness as to their movements

and intentions. The British cavalry ought to be able to afford the like service to our forces in the event of a sudden declaration of war; but, to be in a position to do so, they must ever be ready to march to the port of embarkation at 24 hours' notice.

Unfortunately, however, unless the organization of cavalry is specially adapted to this end, a very perfect state of preparation is out of the question. In our army, not only does a long time elapse before a regiment is ready for foreign service, but even then not more than three-fourths of the paper strength is actually available. See what happens when a regiment is ordered to India: the strength is practically reduced from four to only three squadrons; and, in fact, if there was a sudden call for cavalry to go on active service, I do not think that any regiment (although the establishment of a few has lately been augmented) could turn out more than three effective squadrons, and these, probably, would but little exceed 100 horses each. Consequently, the whole British cavalry, which even on paper is by no means a large force, consisting as it does of only 28 regiments (household cavalry not included) of four squadrons—total 112 squadrons—in reality can only show 84 comparatively weak squadrons fit for immediate service. Of these, 21 are in India.

Our present organization is not only deceptive to the public—who, ignorant of the details of military affairs, no doubt imagine the cavalry of the British army to be at least one-fourth stronger than it really is—but is in itself a bad and unthrifty organization.

All the military nations of the Continent have had to face this problem, viz., to find a system which, while keeping down the cost of a naturally expensive arm to the lowest safe limit, shall provide for a proper force being forthcoming at the shortest notice, together with the

simultaneous establishment of the necessary depôts. I think I am correct in stating that in every case it has been answered in the same way—that is, by giving to each regiment an establishment of *five* squadrons,* which appears now to be in some sort recognized as the natural and inevitable organization of cavalry. On this system the whole of the five squadrons are precisely alike in time of peace; but, on the order for mobilization being received, one squadron (it does not matter which) is told off to become the depôt, and to it are transferred all recruits who have not completed training, the sick, medical unfits, etc.; every individual, in fact, who cannot go at once to the war. In return, the same squadron gives up enough effective men to take the places of the others, also the whole or a sufficient number of its horses† to complete the mounting of the regiment, which thereupon takes the field with four squadrons (the best number), all complete and ready on the instant for any service.

To realize the economy as well as convenience of this system as compared with our own, let us suppose that the 84 really effective squadrons of which the British cavalry now consists, are sufficient for all emergencies (which they are *not*); then these squadrons would be furnished by 21 regiments only. That is to say, 21 regiments on this system would be equal to the 28 now in existence, and the whole cost of the very expensive staff of seven regiments might be saved. Further comment is needless.

Of course 84 squadrons are not enough to represent the whole reliable strength of the British cavalry, and, far from

* The Austrians have *six*, but otherwise the arrangements are much the same. The regiment takes the field with five instead of four service squadrons.

† The Austrian cavalry is always completely mounted, but sick or old horses are transferred to the depôt squadron, which exchanges serviceable animals.

reducing any corps, I should earnestly advocate an increase to the establishment of all our line cavalry regiments of one squadron; so that all might have a total strength of five squadrons in time of peace; in war, of four service and one dépôt squadron.

All the squadrons alike to be of the organization already laid down, and to be always kept up to their full strength in men, if not in horses.

The staff of a regiment might be the same as at present—regimental staff-officers, 8; staff-sergeants, 10. Five staff-sergeants might be mounted, five dismounted, and one of each class attached to each squadron for administrative purposes.

On the order to be in readiness for active service, the whole of the recruits, with the drill instructors, including the drill-sergeant and the sergeant-instructor of musketry, also the sick, and every man who could not at once march with the regiment, would be transferred to the squadron selected by the commanding officer to remain behind as a dépôt, efficient men being received in exchange. The squadron would also give up 128 horses to complete the mounting of the regiment. This would leave only 10 with the dépôt, and it is safe to say that, out of 690 horses, there would be at least that number of actual cripples absolutely unable to move.

If thought advisable, two lieutenants, out of the three belonging to the squadron, might go with the regiment, their places being supplied by newly appointed sub-lieutenants. Two of these young gentlemen (also if thought desirable) might be sent to join the head-quarters. This would raise the number of officer per (service) squadron to six.

The riding-master would be attached to the dépôt.

The whole of these arrangements need not take more

than 24 hours, at the expiration of which time the regiment ought to report itself ready to march wherever ordered, with four complete and completely mounted squadrons.

The regiment having fairly departed, the dépôt squadron would be moved to Maidstone or any other suitable quarter, as might be ordered, and there partially remounted, to enable the instruction of the recruits to be proceeded with. Young horses as procured would also be sent to the dépôt, to be broken and got into shape as much as possible, before being forwarded to the regiment, which is sure to require them sooner or later. During the whole time the head-quarters remained abroad the dépôt squadron would continue in a state of busy activity, getting batches of recruits and horses fit for the ranks; it is quite probable that the utmost exertion of a full staff of instructors and rough riders will not suffice to get the raw material ready as quickly as it is wanted. The dépôt squadron ought, of course, to retain its proper complement of scouts and pioneers; they would be necessary to complete the education of the recruits, the most eligible of whom would be trained in these duties with a view to the more rapid filling up of any casualties that might occur among the service squadrons.

It will be observed that I have only allowed a margin of 10 horses to cover all that may be, from various causes, unfit to march with the regiment. This was in order to economize by having as large a proportion of dismounted men as possible in time of peace. Every cavalry soldier is, however, aware that, out of 690 horses, probably four times the above number would be unfit for immediate service, and possibly many more still. To cover deficiencies of this sort, as well as for the remounting of the dépôt squadrons, and also to meet the demands of the service generally, it would be highly advisable to establish small dépôts in

various parts of the country (each having its own separate district and sphere of operations), for the purchase and first breaking of remounts. These depôts, if well managed, ought to be able to supply as many horses (sufficiently, if not perfectly, broken) as might at first be required by the regiments of cavalry and batteries of artillery ordered on service. If some arrangement of this kind is not introduced, the only alternative is to draw horses for the squadrons and batteries going on service from those who are to remain at home, thereby destroying the efficiency of the latter; and it must be remembered that we have not many of either to spare.

In order, however, to prevent the cavalry having to make too great demands on these depôts, much more power should be given to commanding officers of cavalry with regard to the rejection of horses unfit for the ranks. It is strange that a man in the position of a lieutenant-colonel commanding a British regiment, intrusted (and properly) with such great powers over his men, and, what is more, over his *officers*, whose characters and prospects of professional advancement he can blast at any moment through the medium of a "confidential report,"* should not be permitted, on his own authority, to get rid of such

* I see the late Commission has reported strongly in favour of the present system. Very well; but can there be any objection to each "confidential report" being invariably shown, whether good or bad, to the officer whom it concerns. If favourable, it would be an inducement to fresh exertions; if otherwise, it would be a most serious warning to amend. There are many cases in which an officer is reported as "careless" or "not very attentive to his duties," or "shows a want of zeal," etc. These are not thought sufficiently serious by the Adjutant-General to be sent back, and it is quite probable that the officer goes on in the happy idea that he has been rather well reported on than otherwise. Since writing the above, I have observed with great pleasure that H.R.H. the Field Marshal Commanding in Chief, in his evidence before the Commission, hit the blot I have alluded to. We may therefore hope that, ere long, the rules regarding "confidential reports" will be modified in a manner that will certainly be gratifying to officers in general. (March, 1876.)

animals as are really unfitted for the service. The fact is, the happiness of the mass of human beings composing a regiment, which the rules of military discipline place at the disposal of the commanding officer, cannot be a question of £ s. d.; whereas a horse represents a tangible sum of money, and therefore the colonel's dictum as to his efficiency or otherwise is not taken. The effect of the regulations on this subject is that the ranks of a mounted corps frequently contain a number of animals that are of no earthly use for real work. I do not mean that they are absolute cripples: there are other horses that, from some incurable nervous or vicious propensity, seldom or never appear on parade, but pass their lives in the hands of the rough riders. Many of these animals are sound enough, and might do well in harness, or even be tolerably steady under saddle when out of the ranks, and would probably, if sold immediately their peculiarities were discovered, fetch decent prices; as it is, they are simply a standing loss to the State. The same may be said of those that possess some particular ailment or infirmity which does not prevent their doing a fair amount of work in peace time, when they can be nursed and well looked after. Such horses cannot be condemned by a committee under existing regulations, yet they would only prove a burden on active service. In order that a regiment should be able to take the field at short notice—and I maintain that no cavalry is in a proper state of efficiency which cannot do so—all horses that are not really serviceable should be as far as possible eliminated from its ranks; this would soon be done if the power lay with the commanding officer, and it is impossible to conceive why a man otherwise fitted for his high position should not be trusted to this extent also.

With regard to regiments going on foreign service in

India, in time of peace, it would probably be convenient to leave only half a squadron to form the home depôt, the other half-squadron being retained to form an Indian depôt in the event of the regiment being called to active service in that country. Some such arrangement appears necessary, because the cavalry in India are mounted there, and do not take their horses with them from England. It would, however, be an excellent arrangement if British cavalry in India could be completely mounted. Horses in that country, if not always cheaply purchased, can at least be cheaply fed, and if it is important for our squadrons at home to be always in a state of preparation for the field, it is doubly so there. What consequences might not have been averted if the 6th Dragoon Guards at Meerut, in '57, had been ready for immediate work! No man can tell when an equal emergency may not again present itself. Besides, India is a great field for cavalry in many respects. So far as any enemy within the country is to be feared, a good force of cavalry alone could make short work of them if they ventured to show fight in the open. The numerically large armies of the native States are not at present—thank Heaven!—provided with arms of rapidity and precision, and whatever may be the power of cavalry in European battles, there is no doubt that British horsemen, with a fair field, can ride down any Asiatics in existence. The more cavalry we have in India on the occasion of the next difficulty, the better it will be for us.

Light cavalry, such as I have depicted, can be well mounted on horses of the country; so could the lancer riding a little over 16 stone. Dragoons may be mounted on "Walers" (Australian horses). The Arab is matchless, and up to any weight, but the real animal is almost unprocurable, except at prohibitive prices.

Regimental Transport.

It is essential to the mobility of a corps that the regimental transport should be carefully organized, and maintained in an efficient state in time of peace as well as of war. However ready the men and horses of a regiment may be to move, they cannot do so unless transport for the light baggage of the cavalry is also at hand. The number of baggage waggons now allowed to a regiment is one forge and two general service waggons for the staff, and four general service waggons for the squadrons; total, one forge and six general service waggons. When tents, etc., are taken an extra waggon per squadron is required. This allowance would appear sufficient for the proposed as for the present organization; only I would strongly urge the importance of handing over the baggage equipment to the permanent charge of the regiment. It would not be necessary to keep up horses, which could easily be purchased, under regimental arrangements, on an order for mobilization; but the men should from time to time be exercised in driving the waggons with hired horses. When a regiment changed its quarters, its waggons would naturally accompany it, drawn by animals hired for the occasion, unless horses were exchanged with the relieving regiment, in which case the waggons would also be handed over, the cost being confined to painting the waggons with a fresh number. By permitting regiments to retain their own baggage equipment in time of peace, much trouble and delay would be saved in preparing for active service, at a very trifling cost to the State.

For India, I think pack animals are superior to wheeled transport of any description. The pony or "tattoo" of the country makes a very serviceable baggage animal. They will carry 300 to 400 lbs. and keep up with the regiment.

during the longest marches. Mules, too, are excellent, but expensive, and not always to be procured. Either are preferable on the whole to camels. A pony or mule to every two men is sufficient; but one per man is better, seeing that Europeans cannot in that climate do without tents. Other arrangements can be made for ammunition, hospital, etc.; but country carts should be avoided for the carriage of cavalry baggage on a campaign. Officers make their own arrangements.

Reserves.

The system of short service introduced by Lord Cardwell is no doubt a great advance upon the old order of things. Considered, however, on its merits, the plan as regards the cavalry is singularly crude and undeveloped. This partly arises from its being an attempt to reconcile our unique custom of voluntary enlistment with arrangements which were never originally intended to rest on so precarious a basis. Besides, a cavalry soldier is a compound animal, consisting of a man and a horse, and it is no use having a trained reserve of the former, intended to return to the ranks on the outbreak of war, unless there is also one of the latter, and to maintain this in a state of efficiency would necessitate a considerable outlay; and, therefore, since cavalry ought always to be in the highest possible state of preparation for active service, it would be truer economy to expend the same money in maintaining a smaller number of squadrons on a perpetual war footing.

It is the writer's belief that, sooner or later, the nation will recognize the principle that it is the duty of every citizen to bear arms in maintenance of the just rights of his country, if required; all the more so, that as a member of a free and peace-loving nation, he can never be called

upon to fight, except in a case where the vital interests of his country are concerned. At present, strange to say, the noble profession of a soldier is looked upon as positively degrading, except among the higher classes; and until universal liability to military service is introduced, the supply of recruits will always be scanty and uncertain. Such must remain the state of affairs until a mild conscription (for we do not want an enormous army), but without substitution, brings a superior class of men into the ranks, when the unpopularity of the army, and the inconvenience, expense, and danger to the nation which attends the fluctuating nature of our supply of soldiers, will disappear together.

As, however, it may be long before so great a reform is brought about, it might be as well to see if our present arrangements could not be improved upon. Under the existing system the term of enlistment is fixed at 12 years, it being within the power of the War Minister to settle what portion of that period shall be spent with the colours, and what portion in the reserve.

The service of cavalry soldiers is now eight years in the ranks and four in the reserve. In the infantry it is six years in each. The reason why it is so much longer in the cavalry is, because it is supposed to take three years to perfect a trooper, while one is enough for his infantry comrade. Whether this be actually the case or no, it is at least evident that the strength of the cavalry reserves must, under such an arrangement, be very much smaller than those of the infantry—they will, in fact, be over 50 per cent. less in proportion to the number of rank and file; and as the importance of a sufficient number of good cavalry is now fully acknowledged, and, moreover, as it is an arm which cannot be improvised, and which is liable to suffer greatly in a campaign of any duration, it would appear

that large reserves are of at least equal importance to it as to the infantry. It may very likely take longer to make a dragoon than a foot soldier, but if a service of three years in the ranks is sufficient for the Prussian and Austrian cavalry, I cannot see why six should not suffice for the British trooper; and it would be obviously convenient if the service of the cavalry soldier was divided in the same proportion as that of the infantry.

The practice of general service enlistment is also greatly to be condemned; for there can be no doubt that if reservists are to be thrust indiscriminately into the ranks of any convenient regiment on the outbreak of war, old dragoons becoming hussars, and old lancers dragoons, etc., not only will the men be much less willing to come forward, but they will not easily be assimilated by their new corps.

With the organization I have proposed, this at least would be avoided; for the regiment of five squadrons would be able to start with four squadrons complete and ready for service in a very short time after receiving the mobilization order. The reservists would then be superfluous, as far as the cavalry of the first line are concerned, and would more conveniently be formed into separate reserve squadrons.

Under the organization previously given, the number of non-commissioned officers and men in a regiment would amount to 860, including staff sergeants. Now, if a service of six years in the ranks was adopted, it is plain that, on an average, one-sixth of the above, or about 143 non-commissioned officers and men, would be yearly passed into the reserve, their places, of course, being filled by fresh enlistments. In practice, however, this number is subject to a certain diminution on account of deaths, desertions, dismissals, etc., the total of which reaches, I am informed, to about 8 per cent. per annum on the number of original enlistments. At this rate the 143

would be reduced to 87, from which number those who are allowed to re-engage must also be deducted. Taking 17 as the number of re-engagements (which should be entirely confined to non-commissioned officers), we find that 70 would be the annual average number of men passed to the reserve.

The total strength of the reserve of each regiment would be six times 70, minus the casualties. Omitting wilful absentees, men who emigrate or determine not to present themselves when called up—deserters, in fact—it is evident the casualties will not be heavy. Deaths among a body of seasoned men in the prime of life cannot be numerous, and cases of discharge or dismissal would be very rare. It will, then, be pretty safe to calculate the average annual reduction in numbers at half the former rate, or 4 per cent. At this rate the 70 who entered the reserve would be reduced in six years to a fraction less 55, and the average number of men at any one time in the reserve may be taken at the mean between 70 and 55 multiplied by 6, that is, $62.5 \times 6 = 375$.

The strength of a squadron on the proposed organization is 170 non-commissioned officers and men; the above number would therefore be sufficient for two squadrons, and leave a margin of 35 to allow for fluctuations in the original supply, and for those who fail to appear when called out.

These reserve squadrons should be complete, with a sufficient proportion of officers; and, although in no case required to proceed on service with the cavalry of the first line, they should be considered as *forming a part of the regiments in whose ranks the men originally served*. The mere fact of still belonging to their old corps would be an incentive to the men to come forward when required, and the advantages of keeping united non-com-

missioned officers and men who know and are accustomed to one another need not be dilated upon. Regular rolls of the two reserve squadrons would be kept at the head-quarters of the regiment, or at the depôt when the regiment is abroad, and promotions to vacancies would be made, when necessary, precisely as in the active squadrons. All non-commissioned officers and men over the complement would be borne as supernumeraries on the roll of one or other of the squadrons; the oldest men being made so, instead of the latest entries. On the mobilization of the regiment the men of the reserve squadrons would join at the depôt, or other appointed place. If the regiment, as might well happen in these days, was short of its full strength, a call might be made for volunteers from the reserve to make up the complement, but it is to be hoped that such a proceeding would not be necessary. A few men would be wanted as drivers of regimental transport waggons, and also for the field police of the army. Such might well be taken from the reserve, and the surplus would probably allow of this being done without intrenching on the proper strength of the reserve squadrons.

One captain and two lieutenants would be sufficient for each reserve squadron. They might be commanded, in the first instance, by supernumerary captains, who would be placed on temporary half-pay, with a small allowance in addition for the command; in future, by unpromoted captains of 20 years' service, and others who might apply for the appointments. These officers would be on permanent half-pay, with, of course, the command allowance. Many additional promotions might be made from the ranks, with the intention of posting the officers to the reserve, after a year or two of regimental service; and, generally speaking, the reserves would be largely officered by men who had risen from the ranks. Officers of this class,

mostly elderly men with families, could live quietly and respectably on their half-pay with a moderate additional allowance, and, while continuing to serve the State, would as a rule be more happy and comfortable than if retained with their regiments.

On the mobilization of the reserve, the first thing is, of course, to get it mounted. This, though no light matter, would not approach in difficulty the task of mounting the same number of men of the regiment itself. This is for two reasons—first, because the regiment is required to be ready for *immediate* service, which is not the case with the reserve; and, secondly, because the regiment must be mounted on well-trained horses, whereas any that are sound, up to the weight, and broken merely to the saddle, will do for the reserve. A sufficient amount of training can be imparted afterwards by the men themselves.

As the remount depôts, previously spoken of, would probably be sufficiently taxed to provide horses for the artillery and such as might be required by the service squadrons of cavalry, the reserve squadrons would have to be mounted principally, if not entirely, by purchase. Although our native stock of horses is certainly not what it might be, either in quality or quantity, yet there is certainly a sufficient number in England to meet any demands of this sort with ease; and as, when the country does fairly go to war, money is always spent with a recklessness which even exceeds the stinginess displayed in times of peace, the sums required for so obvious a necessity as mounting the reserve would be forthcoming at once.

Of course it would be far preferable, both on the score of economy and efficiency, to make an arrangement by which the required number of horses would always be ready when wanted, as is done in other countries; but as this would necessitate a small annual outlay, it is not likely that anything of the kind would be attempted.

The reserve squadrons, when mobilized, form, in the first place, part of the garrison of England; but they would also be liable to be sent abroad if wanted, and, in a European war, at least one reserve squadron of each regiment of the active army would have to go to the seat of war.

Their duties there would chiefly consist in assisting to protect the lines of communication, furnishing escorts to convoys, supplying men for the field postal arrangements, orderlies to general and staff officers, etc. They would, in short, form part of what the Germans call the "*étappou*" troops, and would thus relieve the service squadrons of a very destructive and fatiguing part of the work which now falls upon them, and which the reserve—less perfect, of course, as soldiers before the enemy—could perform equally well. The cavalry of the army in front, which with us is never likely to be very numerous, has duties of its own of a very important and arduous nature; and it is impossible that it can perform these efficiently unless freed from extraneous labours, and its numbers left undiminished by the absence of the calls that are now made on it for all sorts of work that, properly speaking, form no part of the duties of the fighting army.

It is in undertaking such necessary, but still secondary, duties that the *objet d'être* of reserve cavalry lies. It would be only in most exceptional cases that any portion of them would be sent to the front, or take part in actual operations against the enemy.

The Brigade.

A brigade of cavalry, under the systems of organization and tactics which I have ventured to suggest, would ordinarily consist of two regiments or eight squadrons in the

field. It should never consist of more than three regiments or twelve squadrons. The present * British brigades of six regiments, with a nominal strength of 24 squadrons, are absurd. In numbers they are *divisions*, and if not tied down to corps d'armée (another absurdity) would form a command of greater importance than that of any infantry division.

It is advisable that regiments of the same class should be brigaded together, hussars with hussars, and dragoons with dragoons. Each class of cavalry is supposed to have its own *métier*, and it is only by keeping them somewhat apart that it is possible to make use of each in the most befitting manner. If cavalry are mixed up together anyhow, they might as well be all of one class.

The Division.

The normal strength of a division, under the proposed organization, would be 16 squadrons, *i.e.*, two brigades of eight squadrons each. The strength in horses, on a war footing, would be 2752, exclusive of officers.† (The nominal strength of a British brigade of six regiments is 2880 horses.) Two batteries of horse artillery (12 guns) and a battalion of mounted infantry should form part of every cavalry division in the field.

I regard the last-named constituent as very important. Mounted infantry can never *replace* cavalry, but will in future be a valuable auxiliary. I have before pointed out the very numerous instances in which mounted infantry

* I believe six regiments is intended to be the normal strength of a brigade when the amount of cavalry available is sufficient to allow it; in the mobilization scheme, however, the strength of cavalry brigades varies from three to six regiments.

† Officers: 1 divisional commander; 3 staff; 2 brigade commanders; 2 staff; 124 regimental officers. Total, 132.

can be of great assistance to cavalry in the performance of their duty in covering an army. The absence of such auxiliaries has been actually felt. At the commencement of the campaign of 1870, the French attached battalions of chasseurs *à pied* to their cavalry divisions; but no good result was attained, for these battalions on foot could not keep up with the cavalry, and were always in rear when they should have been in front. On the other hand, they were too weak to be left entirely to themselves, and in consequence the cavalry was frequently obliged to delay its movements to allow the chasseurs to keep up. The latter were, in fact, a clog instead of an assistance. Later on, the Germans, during the advance on Paris, sent infantry *in carts* along with their cavalry divisions. These infantry were thus enabled to keep up with the cavalry; but as carts can only move along the roads, the plan does not admit of more than a limited application.

Cavalry divisions must *not* be attached to particular corps d'armée, much less considered as forming an integral part of them. I have before given the reasons for this. To gain the greatest advantages from a scientific use of large bodies of cavalry, it is absolutely necessary that they should be both strategically and tactically independent, and controlled *as a whole* by the Commander-in-Chief, who has necessarily the widest and most complete knowledge of the state of affairs. The effect of their united action cannot be attained if they are at the disposal of leaders of corps, whose views are limited, and who naturally pay most attention to circumstances which affect themselves and their own commands. Also, the number of cavalry divisions should depend principally upon the nature of the theatre of war, independently of the number of corps of which the army happens to be composed.

The cavalry divisions should, I think, be entirely com-

posed of carbine-armed regiments. This is because much more fighting on foot and outpost work is likely to fall to their share than to the divisional horse, who are never far away from their own infantry. Lancers, on the other hand, are particularly fitted for the latter, because their weapon is undoubtedly superior to the sword for attacking infantry, and of such combats they will have the most frequent chances. The cavalry divisions being composed entirely of dragoons and hussars, it would be a proper arrangement to have a brigade of each in every division; and if the whole cavalry of a well-organized army be taken into consideration, it will be found that about twice as many squadrons are employed with the cavalry divisions as are attached to the infantry, so that the former being half dragoons and half hussars, while the latter are all lancers, it would appear that there is about equal employment for each class of cavalry in the field.

The British Cavalry in General.

The British cavalry at the present moment consists of 28 regiments of line cavalry and three regiments of household troops, all with an establishment (for home service!) of eight troops or four squadrons.

With the household cavalry we have no concern, and, putting them aside, will proceed to examine the line.

The 28 regiments are made up of seven regiments of dragoon guards and 21 others, numbered consecutively; of whom three (1st, 2nd, and 6th) are dragoon regiments, five lancers (5th, 9th, 12th, 16th, and 17th), and the remaining 13 hussars. There is no practical difference between so-called heavy, medium, or light regiments; and, in fact, the whole classification and nomenclature of the cavalry is meaningless and absurd. The patchwork way

in which our army has been brought into its present form is apparent at every turn.

If it be conceded that a general reform and reorganization of our cavalry is necessary, it would not be difficult to rearrange the Army List in a somewhat more rational and intelligible manner. To begin with, the 1st, 2nd, and 6th Dragoons might be added to the seven dragoon guard regiments, the latter dropping an appellation which is now quite meaningless, and the whole 10 regiments would be numbered from 1st to 10th Dragoons. The famous regiments of the "Union Brigade" would be none the less "The Royals," "Greys," and "Inniskillings," for bearing a different number. They have left their mark too plainly on history, and their appellations are too familiar to all classes of the nation, for them to run any risk of losing their identity. Eighteen regiments of lancers and hussars remain to be dealt with. Of these only five are lancers. We are provided with 10 dragoon regiments; and as it appears proper for each class to be of equal strength, we should require 10 regiments of lancers and 10 of hussars. To attain this it would be necessary to raise two new regiments, both lancers, and to convert three hussar regiments into the same. It would not be necessary or politic to number each class separately, or to alter the whole of the numbers of the 20 regiments; certainly not without ascertaining the feelings of the regiments concerned. It is quite probable that most of them would prefer to retain the old number under which the corps had won distinction. I would suggest that three regiments out of the 13 of hussars should be asked to volunteer to become lancers, with the condition that they should afterwards be numbered 1st, 2nd, and 6th. Two new regiments of lancers would fill two of the vacant places in the Army List, and the 21st Hussars, if not itself converted, the third.

The whole of the cavalry might be organized on the five-squadron system proposed, and they would then be able to turn out, almost at a moment's notice, 120 complete squadrons fit for any service, including, of course, those that are absent in India. These squadrons would have a total strength of 20,640 men *and horses*,* as against the paper strength of 112 squadrons, with about 16,996 men and only 13,440 horses, of the present organization. There would, in addition, be the reserve squadrons, 60 in number, with a total strength of 10,200 men, for whom horses would have to be provided. It is not probable, however, that they would ever be all mobilized at the same time. The dépôt squadrons would contain 5160 men and about half that number of horses, but they cannot be reckoned in computing the fighting strength.

A possible grand total of nearly 31,000 cavalry may be considered by some civilians as more than the country requires. To refute this, I think I need simply point out that, in case of an European war, the whole available cavalry in England would, after providing a sufficiency of divisional squadrons, be only able to make up *three* of the small divisions of which I have just given the organization, and there would then be left in the country, of cavalry of the first line, only one regiment, and the household brigade. When, too, we consider the value which is set on good cavalry by the highest judges, and the still greater estimation in which I believe it will be held when its tactical employment is thoroughly understood; the impossibility of improvising it should the supply run short; and last, but not least, the great field for its use which may at any moment be presented to us in India, it must be accorded that a larger force of cavalry than we now possess is a necessary element in securing the safety of the British empire.

* Not including officers.

The organization I have proposed, if carried out in its entirety, would perhaps result in augmenting the cost of the cavalry branch by one-half, but I have little hesitation in asserting that its *real*, not paper strength, would be trebled. Taking into consideration the enormous sums that have to be expended on the breaking out of even a petty war, in order to get the troops destined for it ready for the field, and also remembering our undoubtedly dangerous weakness in cavalry—which, I ask, is the truest economy: a moderately increased constant expenditure, not liable to be greatly swelled in the event of war, combined with perfect efficiency, and a numerical strength sufficient to meet any ordinary strain; or the present extravagant system, in which economy is practised at the wrong end, and the maximum of expenditure is united with the minimum of efficiency?

Nearly the whole of the foregoing pages were written as long ago as 1875, since which time several new ideas, or modifications of ideas, have been put forward; and we have also seen the outbreak, though not, alas, the termination, of a great European war.

That war, so far as can be judged from the naturally imperfect and undigested accounts which have reached us, does not appear to have been at present at all prolific in lessons of especial value to the cavalry soldier. The action of the Russian cavalry, enormously superior as it is in numbers, equipment, and discipline to that of the Turks, must have been very disappointing to those who expected, and with some reason, to see it from the first flood Turkish territory in all directions, and emulate at least, if it did not

surpass, the deeds of the German horsemen in 1870. The Russian cavalry is remarkable for having adopted fire-arms and fire tactics to a much greater extent than that of any other nation. The Russian dragoons are, in fact, nothing else than mounted riflemen; pains has been taken to train the once-dreaded Cossacks in the use of the rifle; and all classes of the cavalry are encouraged to place great reliance on their fire-arms. The result, however, does not seem to have been quite what was anticipated; for although the Russians have doubtless reaped many of the advantages obtainable by the use of mounted infantry, they appear to have been the losers where the tasks to be accomplished were such as require real cavalry, and this is the more marked on account of the small number of squadrons which the Turks were able to oppose to them. How was it that, with so large a mounted force at disposal, they allowed the enemy to convey reinforcements and supplies into beleaguered Plevna? How was it that Suleiman Pasha, himself almost devoid of cavalry, succeeded in removing the mass of his troops from his right to his extreme left, and attacking Elena with superior forces, without the Russian commander being made aware of the intended movement? It is evident that the Russian cavalry has been wanting in boldness and enterprise, and these are precisely the defects likely to be shown by mounted troops, who, relying themselves on fire-arms, respect them to an inconvenient extent in the hands of others, particularly in those of the enemy's infantry. On the other hand, the Turkish cavalry, though much of it was undisciplined, and all of it apparently uninstructed, does not seem to have shown any backwardness in combat, and, in spite of its inferiority in *personnel*, appears not unfrequently to have engaged successfully with that of the enemy.

On the whole, then, the lessons of the war, so far as we can yet understand them, seem to confirm the belief, already established among the generality of cavalry officers, that mounted riflemen are not calculated to replace cavalry in modern war; though they are no doubt valuable, and can render important services, as an auxiliary but distinct arm. It is evident that the first duty of a mounted force is not to fight in line with the infantry, or to assail positions on foot, and that more is lost than can be gained by educating the whole of the mounted branch for the attainment of such objects. The few who think otherwise, forget that as yet we have not seen a rifle-using mounted force opposed by good cavalry; for that of the Turks, although it appears to have fought well, has been too inferior, both numerically and physically, to the many and well-appointed squadrons of Russia, to have had any chance of holding its ground; and in the American war of North and South, the whole of the horse on either side was of the same calibre, so that the excellent service they performed does not by any means prove the fitness of this class of troops to supersede cavalry in the field.

It is this American cavalry which is held up as an example for imitation by those who wish us to rely entirely on fire-arms. It should, however, be remembered that it was the creation, not of choice, but of necessity. The American people, a courageous and enterprising race, proverbially skilled in the use of fire-arms, but generally bad horsemen, were, at the outbreak of the civil war, almost without cavalry on either side. Both parties consequently found it necessary to provide themselves with mounted troops as quickly as possible. The material, however, out of which cavalry is naturally formed was quite wanting, and so was the time requisite for creating cavalry artificially by training and education, as a large portion of

the cavalries of Europe are now created. There was, on the other hand, an abundance of bold and intelligent men, accustomed to the rifle and revolver, though following civil occupations, and also plenty of rough horses, excellent for purposes of locomotion. It was from these materials that the "cavalry" * was formed, and in the absence of real cavalry they were of the greatest value. Whatever they may have done, however, under these circumstances, is no reason why equestrian nations, already possessing fine cavalries, should deliberately depart from their natural proclivities, by converting them into an arm, the positive superiority of which is only attempted to be proved by a series of arguments founded on insufficient data.

It is the same with regard to the alleged inferiority of the sabre to the revolver, since the latter has never been pitted against the former in the hands of good horsemen accustomed to its use. Nor is it fair to argue its inutility from the smallness of the numbers reported to have fallen by it in recent wars; for the same might be said of the artillery, which takes a part in every action, small and great, and yet kills and wounds but a trifling percentage of those actually rendered *hors de combat*. If this argument proves anything, it is the uselessness of the blunt sword carried by European cavalries, the inefficiency of which has often been pointed out. Those who can doubt the deadly power of a sharp weapon in skilful hands would do well to read the account of some of our Eastern campaigns, and they would find among the "butcher's bills" a ghastly account of lopped limbs, cloven heads, and gashed trunks, testifying to the efficiency of a sharp sword in the hands of men infinitely inferior to ourselves in everything but the essentials of good horsemanship and command of their

* If this term can be properly applied to troops who thought it extraordinary to attempt "a mounted charge."

weapon. It is simply inconceivable that any body of mounted men, armed with the revolver, should charge with the vigour and celerity necessary to insure success in a contest with real cavalry. The revolver, like all fire-arms, cannot be used with full effect by men in motion, and the tendency of horsemen employing it to the exclusion of the sabre, would be to advance very slowly, or even to draw up to receive a charge, when they would, of course, be overthrown by an enemy attacking them at the gallop. Even in a *mêlée* a revolver loses its offensive power after its five or six chambers have been emptied, as may well happen in such a contest, and the bearer is then at the mercy of a swordsman, whose weapon will slay so long as it retains its edge and point. There is also the uncomfortable fact that, in a *mêlée* of horsemen armed with revolvers, bullets must not unfrequently find a lodgment in the bodies of friends.

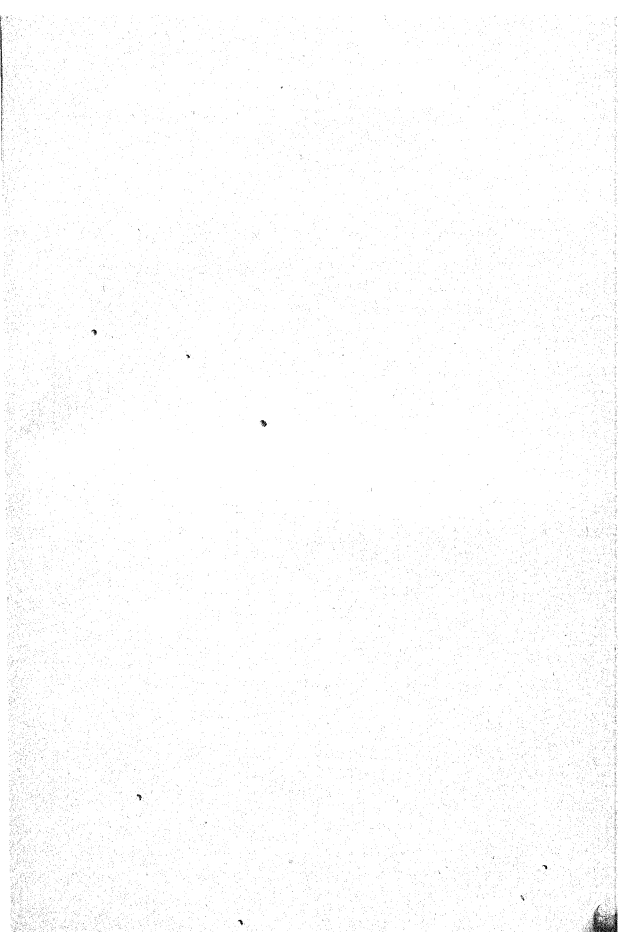
The details of such cavalry combats as have taken place during the present war are wanting, but the disaster which befel a body of Circassian horsemen in the early part of the campaign in Armenia seems noteworthy. These men appear to have been surrounded by superior forces, and, being armed with revolvers and repeating rifles, they seem to have stood on the defensive, instead of endeavouring to cut their way out, with the result that they were captured or slain to a man. It is evident that had they been armed with the sabre alone, no worse fate could have befallen them; and circumstances must have been very adverse not to permit of some at least escaping, if, instead of relying on their fire-arms, they had made a bold attempt to force a passage through their enemies.

The advocates of mounted infantry are also apt to forget the small proportion of the whole which such troops,

when acting alone, can bring into action. This is generally not more than one-fourth; and under hardly any circumstances can more than one-half be employed dismounted. No doubt the Americans did a great deal with their mounted riflemen; but, then, both sides were able to dispose of large numbers of men, who were disbanded when the contest was at an end. It is, however, a very different thing when the same principle is sought to be applied to the standing cavalry of European nations. This objection, however, does not hold good in the same degree for mounted infantry, used as auxiliaries to cavalry, in comparatively small numbers. Here the action of the riflemen would, generally speaking, begin where that of the cavalry left off, and the latter would always be at hand to protect the led horses.

It has appeared necessary thus to point out the fallacies of the arguments and assertions of those who would wish to convert the whole of our cavalry without delay into mounted rifles, since their cleverly stated theories are not without a certain effect on the ruling powers, and have even produced a feeling of doubt and uncertainty in the minds of some cavalry officers, the more especially as it is now universally felt that some great change in cavalry tactics is rendered necessary by the conditions of modern war. To those, however, who understand the genius of the arm, it will be evident that such change lies rather in the adoption of formations by which the fire of breech-loaders and artillery will be less severely felt, and in the cultivation of speed in the attack, as an equivalent to the use of cover, which is denied to horsemen. By the adoption of such tactics, cavalry may fairly hope to reap as great advantages on the battle-field as of yore; but to do so the highest degree of courage and confidence in their

own power must be maintained, and for this it is necessary that they should continue in a firm belief in the efficiency of the lance and sword in the hands of bold and skilful horsemen, and put from them the idea that anything is to be gained by the use of fire-arms (save in special cases), to the exclusion of their natural weapons.



NEW MILITARY BOOKS.

RUSSIAN WARS WITH TURKEY.

By MAJOR FRANK S. RUSSELL.

With Two Maps. Second Edition. Crown 8vo. Price 6s.

TACTICAL EXAMPLES, Vol. I.—THE BATTALION.

By MAJOR HUGO HELVIG. Translated by COLONEL SIR LUMLEY GRAHAM.

With nearly 300 Diagrams. Demy 8vo. Cloth, price 15s.

TACTICAL EXAMPLES, Vol. II.—THE REGIMENT AND BRIGADE.

By MAJOR HUGO HELVIG. Translated by COLONEL SIR LUMLEY GRAHAM.

Demy 8vo. Cloth.

THE DUTIES OF THE GENERAL STAFF.

By MAJOR-GEN. VON SCHELLENDORF. Translated by LIEUTENANT HARE.

Vol. I. Demy 8vo. Cloth, price 10s. 6d.

MINOR TACTICS.

By CAPTAIN C. CLERY.

With 26 Maps and Plans. Third and Revised Edition. Demy 8vo.
Cloth, price 16s.

THE OFFICER'S MEMORANDUM BOOK FOR PEACE AND WAR.

By LIEUTENANT-COLONEL R. HARRISON.

Second Edition. Oblong 32mo. Roan, elastic band and pencil,
price 3s. 6d.; russias, 5s.

INFLUENCE OF FIREARMS UPON TACTICS:

Historical and Critical Investigations.

By an OFFICER OF SUPERIOR RANK (in the German Army).

Translated by CAPTAIN E. H. WICKHAM, R.A.

Demy 8vo. Cloth, price 7s. 6d.

THE REGIMENT OF BENGAL ARTILLERY.

The History of its Organization, Equipment, and War Services. Compiled
from Published Works, Official Records, and various Private Sources.

By LIEUT.-COLONEL F. W. STUBBS.

With numerous Maps and Illustrations. Two Vols. Demy 8vo.
Cloth, price 32s.

C. KEGAN PAUL & CO., 1, PATERNOSTER SQUARE, LONDON.

A LIST OF
C. KEGAN PAUL & CO.'S
PUBLICATIONS.

NINETEENTH CENTURY.

A Monthly Review.

EDITED BY JAMES KNOWLES.

Price 2s. 6d.

 VOLUMES I. & II., PRICE 14s. EACH, CONTAIN CONTRIBUTIONS BY

ALFRED TENNYSON.
 THE RIGHT HON. W. E. GLADSTONE,
 M.P.
 CARDINAL MANNING.
 VISCOUNT STRATFORD DE REDCLIFFE.
 THE DUKE OF ARGYLL.
 THE BISHOP OF GLOUCESTER AND
 BRISTOL.
 THE DEAN OF ST. PAUL'S.
 ARCHIBALD FORBES.
 MATTHEW ARNOLD.
 PROFESSOR HUXLEY.
 PROFESSOR CLIFFORD.
 JAMES ANTHONY FROUDE.
 EDWARD DICEY.
 SIR JOHN LUBBOCK.
 DR. W. B. CARPENTER.
 W. CROOKES, F.R.S.
 REV. J. BALDWIN BROWN.
 REV. DR. MARTINEAU.
 REV. J. G. ROGERS.
 DR. WARD.
 REV. R. W. DALE.
 PROFESSOR CROOM ROBERTSON.
 FREDERIC W. H. MYERS.
 ARTHUR ARNOLD.
 JAMES SPEDDING.
 RIGHT HON. JAMES STANSFELD, M.P.
 FREDERIC HARRISON.
 GEORGE J. HOLYOAKE.
 REV. A. H. MACKONACHIE.
 CANON T. T. CARTER.
 CANON BARRY.
 LORD SELBORNE.

SIR JAMES FITZJAMES STEPHEN.
 C. A. FYFFE.
 M. E. GRANT DUFF, M.P.
 T. BRASSEY, M.P.
 SIR T. BAZLEY, M.P.
 RIGHT HON. LYON PLAYFAIR, M.P.
 LORD BLACHFORD.
 SIR JULIUS VOGEL.
 PROFESSOR HENRY MORLEY.
 W. R. GREG.
 W. R. S. RALSTON.
 E. D. J. WILSON.
 HENRY IRVING.
 SIR THOMAS WATSON, M.D.
 R. H. HUTTON.
 EDGAR BOWRING.
 LADY POLLOCK.
 JOHN FOWLER.
 GEORGE VON BUNSEN.
 W. G. PEDDER.
 W. H. MALLOCK.
 GEORGE PERCY BADGER, D.C.L.
 ROSWELL FISHER.
 PROFESSOR COLVIN.
 J. NORMAN LOCKYER.
 PROFESSOR HUNTER.
 COLONEL GEORGE CHESNEY.
 SIR ERSKINE PERRY.
 SIR HENRY SUMNER MAPNE.
 REV. N. K. CHERRILL, M.A.
 REV. MALCOLM MACCOLL.
 GODFREY TURNER.
 CHARLES GRANT.

A LIST OF
C. KEGAN PAUL & CO.'S
PUBLICATIONS.

- ABDULLA (Hakayit)*—AUTOBIOGRAPHY OF A MALAY MUNSHI. Translated by J. T. THOMSON, F.R.G.S. With Photo-lithograph Page of Abdulla's MS. Post 8vo. price 12s.
- ADAMS (A. L.) M.A., M.B., F.R.S., F.G.S.*—FIELD AND FOREST RAMBLES OF A NATURALIST IN NEW BRUNSWICK. With Notes and Observations on the Natural History of Eastern Canada. Illustrated. 8vo. price 14s.
- ADAMS (F. O.) F.R.G.S.*—THE HISTORY OF JAPAN. From the Earliest Period to the Present Time. New Edition, revised. 2 volumes. With Maps and Plans. Demy 8vo. price 21s. each.
- A. K. H. B.*—A SCOTCH COMMUNION SUNDAY, to which are added Certain Discourses from a University City. By the Author of 'The Recreations of a Country Parson.' Second Edition. Crown 8vo. price 5s.
- ALLEN (Rev. R.) M.A.*—ABRAHAM; HIS LIFE, TIMES, AND TRAVELS, 3,800 years ago. With Map. Second Edition. Post 8vo. price 6s.
- ALLEN (Grant) B.A.*—PHYSIOLOGICAL ÆSTHETICS. Crown 8vo. 9s.
- ANDERSON (Rev. C.) M.A.*—NEW READINGS OF OLD PARABLES. Demy 8vo. price 4s. 6d.
- CHURCH THOUGHT AND CHURCH WORK. Edited by. Second Edition. Demy 8vo. price 7s. 6d.
- WORDS AND WORKS IN A LONDON PARISH. Edited by. Second Edition. Demy 8vo. price 6s.
- THE CURATE OF SHYRE. Second Edition. 8vo. price 7s. 6d.
- ANDERSON (R. C.) C.E.*—TABLES FOR FACILITATING THE CALCULATION OF EVERY DETAIL IN CONNECTION WITH EARTHEN AND MASONRY DAMS. Royal 8vo. price £2. 2s.
- ARCHER (Thomas)*—ABOUT MY FATHER'S BUSINESS. Work amidst the Sick, the Sad, and the Sorrowing. Crown 8vo. price 5s.
- ASHTON (J.)*—ROUGH NOTES OF A VISIT TO BELGIUM, SEDAN, AND PARIS, in September 1870-71. Crown 8vo. price 3s. 6d.

BAGEHOT (*Walter*)—THE ENGLISH CONSTITUTION. A New Edition, Revised and Corrected, with an Introductory Dissertation on Recent Changes and Events. Crown 8vo. price 7s. 6d.

LOMBARD STREET. A Description of the Money Market. Seventh Edition. Crown 8vo. price 7s. 6d.

SOME ARTICLES ON THE DEPRECIATION OF SILVER, AND TOPICS CONNECTED WITH IT. Demy 8vo. price 5s.

BAGOT (*Alan*)—ACCIDENTS IN MINES. Crown 8vo. cloth. 6s.

BALDWIN (*Capt. J. H.*) *F.Z.S. Bengal Staff Corps.*—THE LARGE AND SMALL GAME OF BENGAL AND THE NORTH-WESTERN PROVINCES OF INDIA. 4to. With numerous Illustrations. Second Edition. Price 21s.

BARTLEY (*G. C. T.*)—DOMESTIC ECONOMY : Thrift in Every-Day Life. Crown 8vo. 2s.

BAUR (*Ferdinand*) *Dr. Ph., Professor in Maulbronn.*—A PHILOLOGICAL INTRODUCTION TO GREEK AND LATIN FOR STUDENTS. Translated and adapted from the German. By C. KEGAN PAUL, M.A. Oxon., and the Rev. E. D. STONE, M.A., late Fellow of King's College, Cambridge, and Assistant Master at Eton. Crown 8vo. price 6s.

BECKER (*Bernard H.*)—THE SCIENTIFIC SOCIETIES OF LONDON. Crown 8vo. price 5s.

BENNIE (*Rev. J. N.*) *M.A.*—THE ETERNAL LIFE. Sermons preached during the last twelve years. Crown 8vo. price 6s.

BERNARD (*Bayle*)—SAMUEL LOVER, HIS LIFE AND UNPUBLISHED WORKS. In 2 vols. With a Steel Portrait. Post 8vo. price 21s.

BISCOE (*A. C.*)—THE EARLS OF MIDDLETON, Lords of Clermont and of Fettercairn, and the Middleton Family. Crown 8vo. price 10s. 6d.

BISSET (*A.*)—HISTORY OF THE STRUGGLE FOR PARLIAMENTARY GOVERNMENT IN ENGLAND. 2 vols. Demy 8vo. price 24s.

BLANC (*H.*) *M.D.*—CHOLERA : HOW TO AVOID AND TREAT IT. Popular and Practical Notes. Crown 8vo. price 4s. 6d.

BONWICK (*J.*) *F.R.G.S.*—PYRAMID FACTS AND FANCIES. Crown 8vo. price 5s.

BOWEN (*H. C.*) *M.A., Head Master of the Grocers' Company's Middle Class School at Hackney.*

STUDIES IN ENGLISH, for the use of Modern Schools. Small crown 8vo. price 1s. 6d.

BOWRING (*L.*) *C.S.I.*—EASTERN EXPERIENCES. Illustrated with Maps and Diagrams. Demy 8vo. price 16s.

BOWRING (*Sir John*).—AUTOBIOGRAPHICAL RECOLLECTIONS OF SIR JOHN BOWRING. With Memoir by LEWIN B. BOWRING. Demy 8vo. price 14s.

BRADLEY (*F. H.*)—ETHICAL STUDIES. Critical Essays in Moral Philosophy. Large post 8vo. price 9s.

MR. SIDGWICK'S HEDONISM : an Examination of the Main Argument of 'The Methods of Ethics.' Demy 8vo, sewed, price 2s. 6d.

BROOKE (Rev. S. A.) M.A., Chaplain in Ordinary to Her Majesty the Queen, and Minister of Bedford Chapel, Bloomsbury.

LIFE AND LETTERS OF THE LATE REV. F. W. ROBERTSON, M.A.,
Edited by.

I. Uniform with the Sermons. 2 vols. With Steel Portrait. Price 7s. 6d.

II. Library Edition. 8vo. With Two Steel Portraits. Price 12s.

III. A Popular Edition. In 1 vol. 8vo. price 6s.

THE FIGHT OF FAITH. Sermons preached on various occasions.
Third Edition. Crown 8vo. price 7s. 6d.

THEOLOGY IN THE ENGLISH POETS.—Cowper, Coleridge, Wordsworth,
and Burns. Third Edition. Post 8vo. price 9s.

CHRIST IN MODERN LIFE. Eleventh Edition. Crown 8vo. price 7s. 6d.

SERMONS. First Series. Ninth Edition. Crown 8vo. price 6s.

SERMONS. Second Series. Third Edition. Crown 8vo. price 7s.

FREDERICK DENISON MAURICE: The Life and Work of. A
Memorial Sermon. Crown 8vo. sewed, price 1s.

BROOKE (W. G.) M.A.—THE PUBLIC WORSHIP REGULATION ACT.
With a Classified Statement of its Provisions, Notes, and Index. Third
Edition, revised and corrected. Crown 8vo. price 3s. 6d.

SIX PRIVY COUNCIL JUDGMENTS—1850-72. Annotated by. Third
Edition. Crown 8vo. price 9s.

*BROUN (J. A.)—MAGNETIC OBSERVATIONS AT TREVANDRUM AND
AUGUSTIA MALLEY. Vol. I. 4to. price 63s.*

The Report from above, separately sewed, price 21s.

*BROWN (Rev. J. Baldwin) B.A.—THE HIGHER LIFE. Its Reality,
Experience, and Destiny. Fourth Edition. Crown 8vo. price 7s. 6d.*

DOCTRINE OF ANNIHILATION IN THE LIGHT OF THE GOSPEL OF
LOVE. Five Discourses. Second Edition. Crown 8vo. price 2s. 6d.

*BROWN (J. Croumbie) LL.D.—REBOISEMENT IN FRANCE; or, Records
of the Replanting of the Alps, the Cevennes, and the Pyrenees with Trees,
Herbage, and Bush. Demy 8vo. price 12s. 6d.*

THE HYDROLOGY OF SOUTHERN AFRICA. Demy 8vo. price 10s. 6d.

*BROWNE (Rev. M. E.)—UNTIL THE DAY DAWN. Four Advent
Lectures. Crown 8vo. price 2s. 6d.*

*BURTON (Mrs. Richard)—THE INNER LIFE OF SYRIA, PALESTINE, AND
THE HOLY LAND. With Maps, Photographs, and Coloured Plates. 2 vols.
Second Edition. Demy 8vo. price 24s.*

*CARLISLE (A. D.) B.A.—ROUND THE WORLD IN 1870. A Volume of
Travels, with Maps. New and Cheaper Edition. Demy 8vo. price 6s.*

CARNE (Miss E. T.)—THE REALM OF TRUTH. Crown 8vo. price 5s. 6d.

*CARPENTER (W. B.) LL.D., M.D., F.R.S., &c.—THE PRINCIPLES
OF MENTAL PHYSIOLOGY. With their Applications to the Training and
Discipline of the Mind, and the Study of its Morbid Conditions. Illustrated.
Fourth Edition. 8vo. price 12s.*

CHILDREN'S TOYS, and some Elementary Lessons in General Knowledge which they Teach. With Illustrations. Crown 8vo. price 5s.

CHRISTOPHERSON (*The Late Rev. Henry*) M.A.—SERMONS. With an Introduction by John Rae, LL.D., F.S.A. First Series. Crown 8vo. price 7s. 6d.

SERMONS. With an Introduction by John Rae, LL.D., F.S.A. Second Series. Crown 8vo. price 6s.

CLODD (*Edward*) F.R.A.S.—THE CHILDHOOD OF THE WORLD: a Simple Account of Man in Early Times. Third Edition. Crown 8vo. price 3s.

A Special Edition for Schools. Price 1s.

THE CHILDHOOD OF RELIGIONS. Including a Simple Account of the Birth and Growth of Myths and Legends. Third Thousand. Crown 8vo. price 5s.

A Special Edition for Schools. Price 1s. 6d.

COLERIDGE (*Sara*)—PHANTASMION. A Fairy Tale. With an Introductory Preface by the Right Hon. Lord Coleridge, of Ottery St. Mary. A New Edition. Illustrated. Crown 8vo. Cloth, price 7s. 6d.

MEMOIR AND LETTERS OF SARA COLERIDGE. Edited by her Daughter. With Index. 2 vols. With Two Portraits. Third Edition, Revised and Corrected. Crown 8vo. price 24s.
Cheap Edition. With one Portrait. Price 7s. 6d.

COLLINS (*Mortimer*)—THE SECRET OF LONG LIFE. Dedicated by special permission to Lord St. Leonards. Fourth Edition. Large crown 8vo. price 5s.

COLLINS (*Rev. R.*) M.A.—MISSIONARY ENTERPRISE IN THE EAST. With special reference to the Syrian Christians of Malabar, and the Results of Modern Missions. With Four Illustrations. Crown 8vo. price 6s.

CONWAY (*Moncure D.*)—REPUBLICAN SUPERSTITIONS. Illustrated by the Political History of the United States. Including a Correspondence with M. Louis Blanc. Crown 8vo. price 5s.

COOKE (*Prof. J. P.*) of the Harvard University.—SCIENTIFIC CULTURE. Crown 8vo. price 1s.

COOPER (*T. T.*) F.R.G.S.—THE MISHMEE HILLS: an Account of a Journey made in an Attempt to Penetrate Thibet from Assam, to open New Routes for Commerce. Second Edition. With Four Illustrations and Map. Post 8vo. price 10s. 6d.

CORY (*Lieut.-Col. Arthur*)—THE EASTERN MENACE; or, SHADOWS OF COMING EVENTS. Crown 8vo. price 5s.

COX (*Rev. Samuel*)—SALVATOR MUNDI; or, Is Christ the Saviour of all Men? Second Edition. Crown 8vo. cloth, price 5s.

CROMPTON (*Henry*)—INDUSTRIAL CONCILIATION. Fcap. 8vo. price 2s. 6d.

CURWEN (*Henry*)—SORROW AND SONG; Studies of Literary Struggle. Henry Müllner—Novalis—Alexander Petöfi—Honoré de Balzac—Edgar Allan Poe—André Chénier. 2 vols. crown 8vo. price 15s.

DANCE (Rev. C. D.)—RECOLLECTIONS OF FOUR YEARS IN VENEZUELA. With Three Illustrations and a Map. Crown 8vo. price 7s. 6d.

D'ANVERS (N. R.)—THE SUEZ CANAL : Letters and Documents descriptive of its Rise and Progress in 1854-56. Translated by FERDINAND DE LESSEPS. Demy 8vo. price 10s. 6d.

DAVIDSON (Rev. Samuel) D.D., LL.D.—THE NEW TESTAMENT, TRANSLATED FROM THE LATEST GREEK TEXT OF TISCHENDORF. A New and thoroughly revised Edition. Post 8vo. price 10s. 6d.

CANON OF THE BIBLE : Its Formation, History, and Fluctuations. Second Edition. Small crown 8vo. price 5s.

DAVIES (G. Christopher)—MOUNTAIN, MEADOW, AND MERE : a Series of Outdoor Sketches of Sport, Scenery, Adventures, and Natural History. With Sixteen Illustrations by Bosworth W. Harcourt. Crown 8vo. price 6s.

DAVIES (Rev. J. L.) M.A.—THEOLOGY AND MORALITY. Essays on Questions of Belief and Practice. Crown 8vo. price 7s. 6d.

DAWSON (Geo.), M.A.—PRAYERS, WITH A DISCOURSE ON PRAYER. Edited by his Wife. Fifth Edition. Crown 8vo. 6s.

SERMONS ON DISPUTED POINTS AND SPECIAL OCCASIONS. Edited by his Wife. Second Edition. Crown 8vo. price 6s.

DE KERKADEC (Vicomtesse Solange)—A CHEQUERED LIFE, being Memoirs of the Vicomtesse de Leoville Meilhan. Edited by. Crown 8vo. price 7s. 6d.

DE L'HOSTE (Col. E. P.)—THE DESERT PASTOR, JEAN JAROUSSEAU. Translated from the French of Eugène Pelletan. With a Frontispiece. New Edition. Fcp. 8vo. cloth, price 3s. 6d.

DE REDCLIFFE (Viscount Stratford) P.C., K.G., G.C.B.—WHY AM I A CHRISTIAN? Fifth Edition. Crown 8vo. price 3s.

DE TOCQUEVILLE (A.)—CORRESPONDENCE AND CONVERSATIONS OF, WITH NASSAU WILLIAM SENIOR, from 1834 to 1859. Edited by M. C. M. SIMPSON. 2 vols. post 8vo. price 21s.

DOWDEN (Edward) LL.D.—SHAKSPERE : a Critical Study of his Mind and Art. Third Edition. Post 8vo. price 12s.

DREW (Rev. G. S.) M.A.—SCRIPTURE LANDS IN CONNECTION WITH THEIR HISTORY. Second Edition. 8vo. price 10s. 6d.

NAZARETH : ITS LIFE AND LESSONS. Third Edition. Crown 8vo. price 5s.

THE DIVINE KINGDOM ON EARTH AS IT IS IN HEAVEN. 8vo. price 10s. 6d.

THE SON OF MAN : His Life and Ministry. Crown 8vo. price 7s. 6d.

DREWRY (G. O.) M.D.—THE COMMON-SENSE MANAGEMENT OF THE STOMACH. Fourth Edition. Fcp. 8vo. price 2s. 6d.

DREWRY (G. O.) M.D., and BARTLETT (H. C.) Ph.D., F.C.S.
CUP AND PLATTER : or, Notes on Food and its Effects. Small 8vo. price 2s. 6d.

EDEN (Frederick)—THE NILE WITHOUT A DRAGOMAN. Second Edition. Crown 8vo. price 7s. 6d.

ELSDALE (Henry)—STUDIES IN TENNYSON'S IDYLLS. Crown 8vo. cloth, price 5s.

ESSAYS ON THE ENDOWMENT OF RESEARCH. By Various Writers.

List of Contributors.—Mark Pattison, B.D.—James S. Cotton, B.A.—Charles E. Appleton, D.C.L.—Archibald H. Sayce, M.A.—Henry Clifton Sorby, F.R.S.—Thomas K. Cheyne, M.A.—W. T. Thiselton Dyer, M.A.—Henry Nettleship, M.A. Square crown 8vo. price 10s. 6d.

EVANS (Mark)—THE STORY OF OUR FATHER'S LOVE, told to Children. being a New and Enlarged Edition of Theology for Children. With Four Illustrations. Fcp. 8vo. price 3s. 6d.

A BOOK OF COMMON PRAYER AND WORSHIP FOR HOUSEHOLD USE, compiled exclusively from the Holy Scriptures. Fcp. 8vo. price 2s. 6d.

THE GOSPEL OF HOME LIFE. Crown 8vo. cloth, price 4s. 6d.

FAVRE (Mons. J.)—THE GOVERNMENT OF THE NATIONAL DEFENCE. From the 30th June to the 31st October, 1870. Translated by H. CLARK. Demy 8vo. price 10s. 6d.

FOLKESTONE RITUAL CASE : the Arguments, Proceedings, Judgment, and Report. Demy 8vo. cloth, price 25s.

FOOTMAN (Rev. H.) M.A.—FROM HOME AND BACK ; or, Some Aspects of Sin as seen in the Light of the Parable of the Prodigal. Crown 8vo. price 5s.

FOWLE (Rev. T. W.) M.A.—THE RECONCILIATION OF RELIGION AND SCIENCE. Being Essays on Immortality, Inspiration, Miracles, and the Being of Christ. Demy 8vo. price 10s. 6d.

FOX-BOURNE (H. R.)—THE LIFE OF JOHN LOCKE, 1632-1704. 2 vols. demy 8vo. price 28s.

FRASER (Donald)—EXCHANGE TABLES OF STERLING AND INDIAN RUPEE CURRENCY, upon a new and extended system, embracing Values from One Farthing to One Hundred Thousand Pounds, and at rates progressing, in Sixteenths of a Penny, from 1s. 9d. to 2s. 3d. per Rupee. Royal 8vo. price 10s. 6d.

FRERE (Sir H. Bartle E.) G.C.B., G.C.S.I.—THE THREATENED FAMINE IN BENGAL : How it may be Met, and the Recurrence of Famines in India Prevented. Being No. 1 of 'Occasional Notes on Indian Affairs.' With 3 Maps. Crown 8vo. price 5s.

FRISWELL (J. Hain.)—THE BETTER SELF. Essays for Home Life. Crown 8vo. price 6s.

GARDNER (J.) M.D.—LONGEVITY : THE MEANS OF PROLONGING LIFE AFTER MIDDLE AGE. Fourth Edition, revised and enlarged. Small crown 8vo. price 4s.

GILBERT (Mrs.)—AUTOBIOGRAPHY AND OTHER MEMORIALS. Edited by Josiah Gilbert. Third Edition. With Steel Portrait and several Wood Engravings. Crown 8vo. price 7s. 6d.

GILL (Rev. W. W.) B.A.—MYTHS AND SONGS FROM THE SOUTH PACIFIC. With a Preface by F. Max Müller, M.A., Professor of Comparative Philology at Oxford. Post 8vo. price 9s.

GODKIN (James)—THE RELIGIOUS HISTORY OF IRELAND: Primitive, Papal, and Protestant. Including the Evangelical Missions, Catholic Agitations, and Church Progress of the last half Century. 8vo. price 12s.

GODWIN (William)—WILLIAM GODWIN: HIS FRIENDS AND CONTEMPORARIES. With Portraits and Facsimiles of the Handwriting of Godwin and his Wife. By C. KEGAN PAUL. 2 vols. Large post 8vo. price 28s.

THE GENIUS OF CHRISTIANITY UNVEILED. Being Essays never before published. Edited, with a Preface, by C. Kegan Paul. Crown 8vo. price 7s. 6d.

GOODENOUGH (Commodore J. G.) R.N., C.B., C.M.G.—JOURNALS OF, during his Last Command as Senior Officer on the Australian Station, 1873-1875. Edited, with a Memoir, by his Widow. With Maps, Woodcuts, and Steel Engraved Portrait. Second Edition. Post 8vo. price 14s.

An Abridged Edition. With Portrait. Crown 8vo. price 5s.

GOODMAN (W.) CUBA, THE PEARL OF THE ANTILLES. Crown 8vo. price 7s. 6d.

GOSPEL (THE) OF HOME LIFE. Crown 8vo. cloth, price 4s. 6d.

GOULD (Rev. S. Baring) M.A.—THE VICAR OF MORWENSTOW: a Memoir of the Rev. R. S. Hawker. With Portrait. Third Edition, revised. Square post 8vo. 10s. 6d.

GRANVILLE (A. B.) M.D., F.R.S., &c.—AUTOBIOGRAPHY OF A. B. GRANVILLE, F.R.S., &c. Edited, with a Brief Account of the Concluding Years of his Life, by his youngest Daughter, Paulina B. Granville. 2 vols. With a Portrait. Second Edition. Demy 8vo. price 32s.

GREY (John) of Dilston.—MEMOIRS. By JOSEPHINE E. BUTLER. New and Revised Edition. Crown 8vo. price 3s. 6d.

GRIFFITH (Rev. T.) A.M.—STUDIES OF THE DIVINE MASTER. Demy 8vo. price 12s.

GRIFFITHS (Capt. Arthur)—MEMORIALS OF MILLBANK, AND CHAPTERS IN PRISON HISTORY. With Illustrations by R. Goff and the Author. 2 vols. post 8vo. price 21s.

GRIMLEY (Rev. H. N.) M.A., Professor of Mathematics in the University College of Wales, and Chaplain of Tremadoc Church.

TREMADOC SERMONS, CHIEFLY ON THE SPIRITUAL BODY, THE UNSEEN WORLD, AND THE DIVINE HUMANITY. Second Edition. Crown 8vo. price 6s.

GRUNER (M. L.)—STUDIES OF BLAST FURNACE PHENOMENA. Translated by L. D. B. GORDON, F.R.S.E., F.G.S. Demy 8vo. price 7s. 6d.

GURNEY (Rev. Archer)—WORDS OF FAITH AND CHEER. A Mission of Instruction and Suggestion. Crown 8vo. price 6s.

HAECKEL (*Prof. Ernst*)—THE HISTORY OF CREATION. Translation revised by Professor E. RAY LANKESTER, M.A., F.R.S. With Coloured Plates and Genealogical Trees of the various groups of both plants and animals. 2 vols. Second Edition. Post 8vo. cloth, price 32s.

THE HISTORY OF THE EVOLUTION OF MAN. With numerous Illustrations. 2 vols. Post 8vo.

HARCOURT (*Capt. A. F. P.*)—THE SHAKESPEARE ARGOSY. Containing much of the wealth of Shakespeare's Wisdom and Wit, alphabetically arranged and classified. Crown 8vo. price 6s.

HAWEIS (*Rev. H. R.*) *M.A.*—CURRENT COIN. Materialism—The Devil—Crime—Drunkenness—Pauperism—Emotion—Recreation—The Sabbath. Crown 8vo. price 6s.

SPEECH IN SEASON. Third Edition. Crown 8vo. price 9s.

THOUGHTS FOR THE TIMES. Eleventh Edition. Crown 8vo. price 7s. 6d.

UNSECTARIAN FAMILY PRAYERS for Morning and Evening for a Week, with short selected passages from the Bible. Square crown 8vo. price 3s. 6d.

HAYMAN (*H.*) *D.D.*, late Head Master of Rugby School.—RUGBY SCHOOL SERMONS. With an Introductory Essay on the Indwelling of the Holy Spirit. Crown 8vo. price 7s. 6d.

HELLWALD (*Baron F. Von*)—THE RUSSIANS IN CENTRAL ASIA. A Critical Examination, down to the Present Time, of the Geography and History of Central Asia. Translated by Lieut.-Col. Theodore Wiegman, LL.B. With Map. Large post 8vo. price 12s.

HINTON (*J.*)—THE PLACE OF THE PHYSICIAN. To which is added ESSAYS ON THE LAW OF HUMAN LIFE, AND ON THE RELATIONS BETWEEN ORGANIC AND INORGANIC WORLDS. Second Edition. Crown 8vo. price 3s. 6d.

PHYSIOLOGY FOR PRACTICAL USE. By Various Writers. With 50 Illustrations. 2 vols. Second Edition. Crown 8vo. price 12s. 6d.

AN ATLAS OF DISEASES OF THE MEMBRANA TYMPANI. With Descriptive Text. Post 8vo. price £6. 6s.

THE QUESTIONS OF AURAL SURGERY. With Illustrations. 2 vols. Post 8vo. price £6. 6s.

LIFE AND LETTERS. Edited by ELLICE HOPKINS. Crown 8vo.

H. J. C.—THE ART OF FURNISHING. A Popular Treatise on the Principles of Furnishing, based on the Laws of Common Sense, Requirement, and Picturesque Effect. Small crown 8vo. price 3s. 6d.

HOLROYD (*Major W. R. M.*)—TAS-HIL UL KALAM ; or, Hindustani made Easy. Crown 8vo. price 5s.

HOOPER (*Mary*)—LITTLE DINNERS: HOW TO SERVE THEM WITH ELEGANCE AND ECONOMY. Thirteenth Edition. Crown 8vo. price 5s.

COOKERY FOR INVALIDS, PERSONS OF DELICATE DIGESTION, AND CHILDREN. Crown 8vo. price 3s. 6d.

EVERY-DAY MEALS. Being Economical and Wholesome Recipes for Breakfast, Luncheon, and Supper. Second Edition. Crown 8vo. cloth, price 5s.

- HOPKINS (M.)*—THE PORT OF REFUGE ; or, Counsel and Aid to Ship-masters in Difficulty, Doubt, or Distress. Second and Revised Edition. Crown 8vo. price 6s.
- HORNE (William) M.A.*—REASON AND REVELATION : an Examination into the Nature and Contents of Scripture Revelation, as compared with other Forms of Truth. Demy 8vo. price 12s.
- HORNER (The Misses)*—WALKS IN FLORENCE. A New and thoroughly Revised Edition. 2 vols. Crown 8vo. Cloth limp. With Illustrations.
VOL. I.—Churches, Streets, and Palaces. Price 10s. 6d.
VOL. II.—Public Galleries and Museums. Price 5s.
- HULL (Edmund C. P.)*—THE EUROPEAN IN INDIA. With a Medical Guide for Anglo-Indians. By R. R. S. MAIR, M.D., F.R.C.S.E. Second Edition, Revised and Corrected. Post 8vo. price 6s.
- HUTTON (James)*—MISSIONARY LIFE IN THE SOUTHERN SEAS. With Illustrations. Crown 8vo. price 7s. 6d.
- JACKSON (T. G.)*—MODERN GOTHIC ARCHITECTURE. Crown 8vo. price 5s.
- JACOB (Maj.-Gen. Sir G. Le Grand) K.C.S.I., C.B.*—WESTERN INDIA BEFORE AND DURING THE MUTINIES. Pictures drawn from Life. Second Edition. Price 7s. 6d.
- JENKINS (E.) and RAYMOND (J.) Esqs.*—A LEGAL HANDBOOK FOR ARCHITECTS, BUILDERS, AND BUILDING OWNERS. Second Edition, Revised. Crown 8vo. price 6s.
- JENKINS (Rev. R. C.) M.A.*—THE PRIVILEGE OF PETER and the Claims of the Roman Church confronted with the Scriptures, the Councils, and the Testimony of the Popes themselves. Fcap. 8vo. price 3s. 6d.
- JENNINGS (Mrs. Vaughan)*—RAHEL : HER LIFE AND LETTERS. With a Portrait from the Painting by Daffinger. Square post 8vo. price 7s. 6d.
- JONES (Lucy)*—PUDDINGS AND SWEETS ; being Three Hundred and Sixty-five Receipts approved by experience. Crown 8vo. price 2s. 6d.
- KAUFMANN (Rev. M.) B.A.*—SOCIALISM : Its Nature, its Dangers, and its Remedies considered. Crown 8vo. price 7s. 6d.
- KING (Alice)*—A CLUSTER OF LIVES. Crown 8vo. price 7s. 6d.
- KINGSFORD (Rev. F. W.) M.A., Vicar of St. Thomas's, Stamford Hill ; late Chaplain H. E. I. C. (Bengal Presidency).*
- HARTHAM CONFERENCES ; or, Discussions upon some of the Religious Topics of the Day. 'Audi alteram partem.' Crown 8vo. price 3s. 6d.
- KINGSLEY (Charles) M.A.*—LETTERS AND MEMORIES OF HIS LIFE. Edited by his WIFE. With Two Steel Engraved Portraits, and Illustrations on Wood, and a Facsimile of his Handwriting. Eleventh Edition. 2 vols. Demy 8vo. price 36s.
- ALL SAINTS' DAY, and other Sermons. Edited by the Rev. W. HARRISON. Crown 8vo. price 7s. 6d.
- LACORDAIRE (Rev. Père)*—LIFE : Conferences delivered at Toulouse. A New and Cheaper Edition. Crown 8vo. price 3s. 6d.

LAMBERT (Cowley) F.R.G.S.—A TRIP TO CASHMERE AND LADAK.
With Illustrations. Crown 8vo. price 7s. 6d.

LAURIE (J. S.)—EDUCATIONAL COURSE OF SECULAR SCHOOL BOOKS
FOR INDIA :—

THE FIRST HINDUSTANI READER. Stiff linen wrapper, price 6d.

THE SECOND HINDUSTANI READER. Stiff linen wrapper, price 6d.

THE ORIENTAL (ENGLISH) READER. Book I., price 6d.; II., price 7½d.; III., price 9d.; IV., price 1s.

GEOGRAPHY OF INDIA; with Maps and Historical Appendix, tracing the Growth of the British Empire in Hindustan. Fcap. 8vo. price 1s. 6d.

L. D. S.—LETTERS FROM CHINA AND JAPAN. With Illustrated Title-page.
Crown 8vo. price 7s. 6d.

LEATHES (Rev. S.) M.A.—THE GOSPEL ITS OWN WITNESS. Crown
8vo. price 5s.

LEE (Rev. F. G.) D.C.L.—THE OTHER WORLD; or, Glimpses of the
Supernatural. 2 vols. A New Edition. Crown 8vo. cloth, price 15s.

LENOIR (J.)—FAYOUM; or, Artists in Egypt. A Tour with M. Gérôme
and others. With 13 Illustrations. A New and Cheaper Edition. Crown
8vo. price 3s. 6d.

LIFE IN THE MOFUSSIL; or, Civilian Life in Lower Bengal. By an Ex-
Civilian. Large post 8vo.

LORIMER (Peter) D.D.—JOHN KNOX AND THE CHURCH OF ENGLAND.
His Work in her Pulpit, and his Influence upon her Liturgy, Articles, and
Parties. Demy 8vo. price 12s.

LOTHIAN (Roxburghe)—DANTE AND BEATRICE FROM 1282 TO 1290.
A Romance. 2 vols. Post 8vo. cloth, price 24s.

LOVER (Samuel) R.H.A.—THE LIFE OF SAMUEL LOVER, R.H.A.;
Artistic, Literary, and Musical. With Selections from his Unpublished Papers
and Correspondence. By BAYLE BERNARD. 2 vols. With a Portrait.
Post 8vo. price 21s.

LOWER (M. A.) M.A., F.S.A.—WAYSIDE NOTES IN SCANDINAVIA.
Being Notes of Travel in the North of Europe. Crown 8vo. price 9s.

LYONS (R. T.) Surg.-Maj. Bengal Army.—A TREATISE ON RELAPSING
FEVER. Post 8vo. price 7s. 6d.

MACAULAY (J.) M.A., M.D. Edin.—THE TRUTH ABOUT IRELAND :
Tours of Observation in 1872 and 1875. With Remarks on Irish Public
Questions. Being a Second Edition of 'Ireland in 1872,' with a New and
Supplementary Preface. Crown 8vo. price 3s. 6d.

MACLACHLAN (A. N. C.) M.A.—WILLIAM AUGUSTUS, DUKE OF
CUMBERLAND: being a Sketch of his Military Life and Character, chiefly as
exhibited in the General Orders of His Royal Highness, 1745-1747. With
Illustrations. Post 8vo. price 15s.

MAIR (R. S.) M.D., F.R.C.S.E.—THE MEDICAL GUIDE FOR ANGLO-
INDIANS. Being a Compendium of Advice to Europeans in India, relating
to the Preservation and Regulation of Health. With a Supplement on the
Management of Children in India. Crown 8vo. limp cloth, price 3s. 6d.

- MANNING* (*His Eminence Cardinal*)—ESSAYS ON RELIGION AND LITERATURE. By various Writers. Third Series. Demy 8vo. price 10s. 6d.
- THE INDEPENDENCE OF THE HOLY SEE. With an Appendix containing the Papal Allocution and a translation. Crown 8vo. cloth, price 5s.
- THE TRUE STORY OF THE VATICAN COUNCIL. Crown 8vo. cloth, price 5s.
- MARRIOTT* (*Maj.-Gen. W. F.*) *C.S.I.*—A GRAMMAR OF POLITICAL ECONOMY. Crown 8vo. price 6s.
- MAUGHAN* (*W. C.*)—THE ALPS OF ARABIA; or, Travels through Egypt, Sinai, Arabia, and the Holy Land. With Map. Second Edition. Demy 8vo. price 5s.
- MAURICE* (*C. E.*)—LIVES OF ENGLISH POPULAR LEADERS. No. 1.—STEPHEN LANGTON. Crown 8vo. price 7s. 6d. No. 2.—TYLER, BALL, and OLDCASTLE. Crown 8vo. price 7s. 6d.
- MAZZINI* (*Joseph*)—A Memoir. By E. A. V. Two Photographic Portraits. Second Edition. Crown 8vo. price 5s.
- MEDLEY* (*Lieut.-Col. J. G.*) *R.E.*—AN AUTUMN TOUR IN THE UNITED STATES AND CANADA. Crown 8vo. price 5s.
- MENZIES* (*Sutherland*)—MEMOIRS OF DISTINGUISHED WOMEN. 2 vols. Post 8vo. price 10s. 6d.
- MICKLETHWAITE* (*J. T.*) *F.S.A.*—MODERN PARISH CHURCHES: Their Plan, Design, and Furniture. Crown 8vo. price 7s. 6d.
- MILNE* (*James*)—TABLES OF EXCHANGE for the Conversion of Sterling Money into Indian and Ceylon Currency, at Rates from 1s. 8d. to 2s. 3d. per Rupee. Second Edition. Demy 8vo. Cloth, price £2. 2s.
- MIVART* (*St. George*) *F.R.S.*—CONTEMPORARY EVOLUTION: An Essay on some recent Social Changes. Post 8vo. price 7s. 6d.
- MOCKLER* (*E.*)—A GRAMMAR OF THE BALOOCHEE LANGUAGE, as it is spoken in Makran (Ancient Gedrosia), in the Persia-Arabic and Roman characters. Fcap. 8vo. price 5s.
- MOFFAT* (*R. S.*)—ECONOMY OF CONSUMPTION: a Study in Political Economy. Demy 8vo.
- MOORE* (*Rev. D.*) *M.A.*—CHRIST AND HIS CHURCH. By the Author of 'The Age and the Gospel,' &c. Crown 8vo. price 3s. 6d.
- MORE* (*R. Jasper*)—UNDER THE BALKANS. Notes of a Visit to the District of Philippopolis in 1876. With a Map, and Illustrations from Photographs. Crown 8vo. cloth, price 6s.
- MORELL* (*J. R.*)—EUCLID SIMPLIFIED IN METHOD AND LANGUAGE. Being a Manual of Geometry. Compiled from the most important French Works, approved by the University of Paris and the Minister of Public Instruction. Fcap. 8vo. price 2s. 6d.
- MORSE* (*E. S.*) *Ph.D.*—FIRST BOOK OF ZOOLOGY. With numerous Illustrations. Crown 8vo. price 5s.

MUSGRAVE (Anthony)—STUDIES IN POLITICAL ECONOMY. Crown 8vo. price 6s.

NEWMAN (J. H.) D.D.—CHARACTERISTICS FROM THE WRITINGS OF. Being Selections from his various Works. Arranged with the Author's personal Approval. Third Edition. With Portrait. Crown 8vo. price 6s.

** A Portrait of the Rev. Dr. J. H. Newman, mounted for framing, can be had price 2s. 6d.

NICHOLAS (T.)—THE PEDIGREE OF THE ENGLISH PEOPLE. Demy 8vo. cloth.

NOBLE (J. A.)—THE PELICAN PAPERS. Reminiscences and Remains of a Dweller in the Wilderness. Crown 8vo. price 6s.

NORMAN PEOPLE (THE), and their Existing Descendants in the British Dominions and the United States of America. Demy 8vo. price 21s.

NOTREGE (John) A.M.—THE SPIRITUAL FUNCTION OF A PRESBYTER IN THE CHURCH OF ENGLAND. Crown 8vo. cloth, red edges, price 3s. 6d.

ORIENTAL SPORTING MAGAZINE (THE). A Reprint of the first 5 Volumes, in 2 Volumes. Demy 8vo. price 28s.

PARKER (Joseph) D.D.—THE PARACLETE : AN Essay on the Personality and Ministry of the Holy Ghost, with some reference to current discussions. Second Edition. Demy 8vo. price 12s.

PARR (Harriet)—ECHOES OF A FAMOUS YEAR. Crown 8vo. price 8s. 6d.

PAUL (C. Kegan)—WILLIAM GODWIN : HIS FRIENDS AND CONTEMPORARIES. With Portraits and Facsimiles of the Handwriting of Godwin and his Wife. 2 vols. Square post 8vo. price 28s.

THE GENIUS OF CHRISTIANITY UNVEILED. Being Essays by William Godwin never before published. Edited, with a Preface, by C. Kegan Paul. Crown 8vo. price 7s. 6d.

PAYNE (Prof. J. F.)—LECTURES ON EDUCATION. Price 6d. each.

- I. Pestalozzi : the Influence of His Principles and Practice.
- II. Fröbel and the Kindergarten System. Second Edition.
- III. The Science and Art of Education.
- IV. The True Foundation of Science Teaching.

A VISIT TO GERMAN SCHOOLS : ELEMENTARY SCHOOLS IN GERMANY. Notes of a Professional Tour to inspect some of the Kindergartens, Primary Schools, Public Girls' Schools, and Schools for Technical Instruction in Hamburgh, Berlin, Dresden, Weimar, Gotha, Eisenach, in the autumn of 1874. With Critical Discussions of the General Principles and Practice of Kindergartens and other Schemes of Elementary Education. Crown 8vo. price 4s. 6d.

PENRICE (Maj. J.) B.A.—A DICTIONARY AND GLOSSARY OF THE KO-RAN. With Copious Grammatical References and Explanations of the Text. 4to. price 21s.

PERCEVAL (Rev. P.)—TAMIL PROVERBS, WITH THEIR ENGLISH TRANSLATION. Containing upwards of Six Thousand Proverbs. Third Edition. Demy 8vo. sewed, price 9s.

PESCHEL (Dr. Oscar)—THE RACES OF MAN AND THEIR GEOGRAPHICAL DISTRIBUTION. Large crown 8vo. price 9s.

PIGGOT (J.) F.S.A., F.R.G.S.—PERSIA—ANCIENT AND MODERN.
Post 8vo. price 10s. 6d.

PLAYFAIR (Lieut.-Col.), Her Britannic Majesty's Consul-General in Algiers.

TRAVELS IN THE FOOTSTEPS OF BRUCE IN ALGERIA AND TUNIS.
Illustrated by facsimiles of Bruce's original Drawings, Photographs, Maps, &c.
Royal 4to. cloth, bevelled boards, gilt leaves, price £3. 3s.

POOR (H. V.)—MONEY AND ITS LAWS : embracing a History of Monetary Theories &c. Demy 8vo. price 21s.

POUSHKIN (A. S.)—RUSSIAN ROMANCE. Translated from the Tales of Belkin, &c. By Mrs. J. Buchan Telfer (*née* Mouravieff). Crown 8vo. price 7s. 6d.

POWER (H.)—OUR INVALIDS : HOW SHALL WE EMPLOY AND AMUSE THEM ? Fcp. 8vo. price 2s. 6d.

PRESBYTER—UNFOLDINGS OF CHRISTIAN HOPE. An Essay shewing that the Doctrine contained in the Damnatory Clauses of the Creed commonly called Athanasian is Unscriptural. Small crown 8vo. price 4s. 6d.

PRICE (Prof. Bonamy)—CURRENCY AND BANKING. Crown 8vo. price 6s.

PROCTOR (Richard A.) B.A.—OUR PLACE AMONG INFINITIES. A Series of Essays contrasting our little abode in space and time with the Infinities around us. To which are added Essays on 'Astrology,' and 'The Jewish Sabbath.' Third Edition. Crown 8vo. price 6s.

THE EXPANSE OF HEAVEN. A Series of Essays on the Wonders of the Firmament. With a Frontispiece. Third Edition. Crown 8vo. price 6s.

RANKING (B. M.)—STREAMS FROM HIDDEN SOURCES. Crown 8vo. price 6s.

RIBOT (Prof. Th.)—ENGLISH PSYCHOLOGY. Second Edition. A Revised and Corrected Translation from the latest French Edition. Large post 8vo. price 9s.

HEREDITY : A Psychological Study on its Phenomena, its Laws, its Causes, and its Consequences. Large crown 8vo. price 9s.

RINK (Chevalier Dr. Henry)—GREENLAND : ITS PEOPLE AND ITS PRODUCTS. By the Chevalier Dr. HENRY RINK, President of the Greenland Board of Trade. With sixteen Illustrations, drawn by the Eskimo, and a Map. Edited by Dr. Robert Brown. Crown 8vo. price 10s. 6d.

RUSSELL (Major Frank S.)—RUSSIAN WARS WITH TURKEY, PAST AND PRESENT. With Maps. Second Edition. Crown 8vo. price 6s.

RUSSELL (W. C.)—MEMOIRS OF MRS. LÆTITIA BOOTHBY. Crown 8vo. price 7s. 6d.

ROBERTSON (*The late Rev. F. W.*) *M.A., of Brighton.*—**LIFE AND LETTERS OF.** Edited by the Rev. Stopford Brooke, M.A., Chaplain in Ordinary to the Queen.

I. Two vols., uniform with the Sermons. With Steel Portrait. Crown 8vo. price 7s. 6d.

II. Library Edition, in Demy 8vo. with Two Steel Portraits. Price 12s.

III. A Popular Edition, in 1 vol. Crown 8vo. price 6s.

SERMONS. Four Series. Small crown 8vo. price 3s. 6d.

NOTES ON GENESIS. Crown 8vo. price 5s.

EXPOSITORY LECTURES ON ST. PAUL'S EPISTLES TO THE CORINTHIANS.
A New Edition. Small crown 8vo. price 5s.

LECTURES AND ADDRESSES, with other Literary Remains. A New Edition. Crown 8vo. price 5s.

AN ANALYSIS OF MR. TENNYSON'S 'IN MEMORIAM.' (Dedicated by Permission to the Poet-Laureate.) Fcp. 8vo. price 2s.

THE EDUCATION OF THE HUMAN RACE. Translated from the German of Gotthold Ephraim Lessing. Fcp. 8vo. price 2s. 6d.

The above Works can also be had, bound in half-morocco.

* * A Portrait of the late Rev. F. W. Robertson, mounted for framing, can be had, price 2s. 6d.

RUTHERFORD (*John*)—**THE SECRET HISTORY OF THE FENIAN CONSPIRACY:** its Origin, Objects, and Ramifications. 2 vols. Post 8vo. cloth, price 18s.

SCOTT (*W. T.*)—**ANTIQUITIES OF AN ESSEX PARISH ;** or, Pages from the History of Great Dunmow. Crown 8vo. price 5s. ; sewed, 4s.

SCOTT (*Robert H.*)—**WEATHER CHARTS AND STORM WARNINGS.** Illustrated. Crown 8vo. price 3s. 6d.

SENIOR (*N. W.*)—**ALEXIS DE TOCQUEVILLE.** Correspondence and Conversations with Nassau W. Senior, from 1833 to 1859. Edited by M. C. M. Simpson. 2 vols. Large post 8vo. price 21s.

JOURNALS KEPT IN FRANCE AND ITALY. From 1848 to 1852. With a Sketch of the Revolution of 1848. Edited by his Daughter, M. C. M. Simpson. 2 vols. Post 8vo. price 24s.

SEYD (*Ernest*) *F.S.S.*—**THE FALL IN THE PRICE OF SILVER.** Its Causes, its Consequences, and their Possible Avoidance, with Special Reference to India. Demy 8vo. sewed, price 2s. 6d.

SHELLEY (*Lady*)—**SHELLEY MEMORIALS FROM AUTHENTIC SOURCES.** With (now first printed) an Essay on Christianity by Percy Bysshe Shelley. With Portrait. Third Edition. Crown 8vo. price 5s.

SHILLITO (*Rev. Joseph*)—**WOMANHOOD :** its Duties, Temptations, and Privileges. A Book for Young Women. Crown 8vo. price 3s. 6d.

SHIPLEY (*Rev. Orby*) *M.A.*—**CHURCH TRACTS :** OR, STUDIES IN MODERN PROBLEMS. By various Writers. 2 vols. Crown 8vo. price 5s. each.

SHUTE (*Richard*) *M.A.*—**A DISCOURSE ON TRUTH,** Post 8vo. price 9s.

- SMEDLEY (M. B.)**—BOARDING-OUT AND PAUPER SCHOOLS FOR GIRLS.
Crown 8vo. price 3s. 6d.
- SMITH (Edward) M.D., LL.B., F.R.S.**—HEALTH AND DISEASE, as Influenced by the Daily, Seasonal, and other Cyclical Changes in the Human System. A New Edition. Post 8vo. price 7s. 6d.
- PRACTICAL DIETARY FOR FAMILIES, SCHOOLS, AND THE LABOURING CLASSES.** A New Edition. Post 8vo. price 3s. 6d.
- TUBERCULAR CONSUMPTION IN ITS EARLY AND REMEDIABLE STAGES.** Second Edition. Crown 8vo. price 6s.
- SMITH (Hubert)**—TENT LIFE WITH ENGLISH GIPSIES IN NORWAY. With Five full-page Engravings and Thirty-one smaller Illustrations by Whymper and others, and Map of the Country showing Routes. Third Edition. Revised and Corrected. Post 8vo. price 21s.
- SOME TIME IN IRELAND.** A Recollection. Crown 8vo. price 7s. 6d.
- STEVENSON (Rev. W. F.)**—HYMNS FOR THE CHURCH AND HOME.
Selected and Edited by the Rev. W. Fleming Stevenson.
The most complete Hymn Book published.
The Hymn Book consists of Three Parts:—I. For Public Worship.
II. For Family and Private Worship.—III. For Children.
** Published in various forms and prices, the latter ranging from 8d. to 6s.
Lists and full particulars will be furnished on application to the Publishers.
- SULLY (James) M.A.**—SENSATION AND INTUITION. Demy 8vo. price 10s. 6d.
- PESSIMISM: a History and a Criticism.** Demy 8vo. price 14s.
- SYME (David)**—OUTLINES OF AN INDUSTRIAL SCIENCE. Crown 8vo. price 6s.
- TELFER (J. Buchan) F.R.G.S., Commander R.N.**—THE CRIMEA AND TRANS-CAUCASIA. With numerous Illustrations and Maps. Second Edition. 2 vols. Royal 8vo. medium 8vo. price 36s.
- THOMPSON (Rev. A. S.)**—HOME WORDS FOR WANDERERS. A Volume of Sermons. Crown 8vo. price 6s.
- TRAHERNE (Mrs. A.)**—THE ROMANTIC ANNALS OF A NAVAL FAMILY. A New and Cheaper Edition. Crown 8vo. price 5s.
- UMBRA OXONIENSIS**—RESULTS OF THE EXPOSTULATION OF THE RIGHT HON. W. E. GLADSTONE, in their Relation to the Unity of Roman Catholicism. Large fcp. 8vo. price 5s.
- UPTON (Capt. Richard D.)**—NEWMARKET AND ARABIA. An Examination of the Descent of Racers and Coursers. With Pedigrees and Frontispiece. Post 8vo. price 9s.
- VAMBERY (Prof. A.)**—BOKHARA: Its History and Conquest. Second Edition. Demy 8vo. price 18s.
- VYNER (Lady Mary)**—EVERY DAY A PORTION. Adapted from the Bible and the Prayer Book, for the Private Devotions of those living in Widowhood. Collected and Edited by Lady Mary Vyner. Square crown 8vo. cloth extra, price 5s.
- WELLS (Capt. John C.) R.N.**—SPITZBERGEN—THE GATEWAY TO THE POLYNIA; or, a Voyage to Spitzbergen. With numerous Illustrations by Whymper and others, and Map. New and Cheaper Edition. Demy 8vo. price 6s.

- WETMORE (W. S.)**—COMMERCIAL TELEGRAPHIC CODE. Second Edition. Post 4to. boards, price 42s.
- WHITE (A. D.) LL.D.**—WARFARE OF SCIENCE. With Prefatory Note by Professor Tyndall. Crown 8vo. price 3s. 6d.
- WHITNEY (Prof. William Dwight)**—ESSENTIALS OF ENGLISH GRAMMAR, for the Use of Schools. Crown 8vo. price 3s. 6d.
- WHITTLE (J. L.) A.M.**—CATHOLICISM AND THE VATICAN. With a Narrative of the Old Catholic Congress at Munich. Second Edition. Crown 8vo. price 4s. 6d.
- WILBERFORCE (H. W.)**—THE CHURCH AND THE EMPIRES. Historical Periods. Preceded by a Memoir of the Author by John Henry Newman, D.D. of the Oratory. With Portrait. Post 8vo. price 10s. 6d.
- WILKINSON (T. L.)**—SHORT LECTURES ON THE LAND LAWS. Delivered before the Working Men's College. Crown 8vo. limp cloth, price 2s.
- WILLIAMS (A. Lukyn)**—FAMINES IN INDIA; their Causes and Possible Prevention. The Essay for the Le Bas Prize, 1875. Demy 8vo. price 5s.
- WILLIAMS (Chas.)**—THE ARMENIAN CAMPAIGN. A Diary of the Campaign of 1877 in Armenia and Koordistan. Large post 8vo. cloth, price 10s. 6d.
- WILLIAMS (Rowland) D.D.**—LIFE AND LETTERS OF; with Extracts from his Note-Books. Edited by Mrs. Rowland Williams. With a Photographic Portrait. 2 vols. large post 8vo. price 24s.
- PSALMS, LITANIES, COUNSELS, AND COLLECTS FOR DEVOUT PERSONS. Edited by his Widow. New and Popular Edition. Crown 8vo. price 3s. 6d.
- WILLIS (R.) M.D.**—SERVETUS AND CALVIN: a Study of an Important Epoch in the Early History of the Reformation. 8vo. cloth, price 16s.
- WILSON (H. Schütz)**—STUDIES AND ROMANCES. Crown 8vo. price 7s. 6d.
- WILSON (Lieut.-Col. C. T.)**—JAMES THE SECOND AND THE DUKE OF BERWICK. Demy 8vo. price 12s. 6d.
- WINTERBOTHAM (Rev. R.) M.A., B.Sc.**—SERMONS AND EXPOSITIONS. Crown 8vo. price 7s. 6d.
- WOOD (C. F.)**—A YACHTING CRUISE IN THE SOUTH SEAS. With six Photographic Illustrations. Demy 8vo. price 7s. 6d.
- WRIGHT (Rev. David) M.A.**—WAITING FOR THE LIGHT, AND OTHER SERMONS. Crown 8vo. price 6s.
- WYLD (R. S.) F.R.S.E.**—THE PHYSICS AND THE PHILOSOPHY OF THE SENSES; or, the Mental and the Physical in their Mutual Relation Illustrated by several Plates. Demy 8vo. price 16s.
- YONGE (C. D.)**—HISTORY OF THE ENGLISH REVOLUTION OF 1688. Crown 8vo. price 6s.
- YOUMANS (Eliza A.)**—AN ESSAY ON THE CULTURE OF THE OBSERVING POWERS OF CHILDREN, especially in connection with the Study of Botany. Edited, with Notes and a Supplement, by Joseph Payne, F.C.P., Author of 'Lectures on the Science and Art of Education,' &c. Crown 8vo. price 2s. 6d.
- FIRST BOOK OF BOTANY. Designed to Cultivate the Observing Powers of Children. With 300 Engravings. New and Enlarged Edition. Crown 8vo. price 5s.
- YOUMANS (Edward L.) M.D.**—A CLASS BOOK OF CHEMISTRY, on the Basis of the New System. With 200 Illustrations. Crown 8vo. price 5s.

THE INTERNATIONAL SCIENTIFIC SERIES.

- I. THE FORMS OF WATER IN CLOUDS AND RIVERS, ICE AND GLACIERS. By J. Tyndall, LL.D., F.R.S. With 25 Illustrations. Seventh Edition. Crown 8vo. price 5s.
- II. PHYSICS AND POLITICS; or, Thoughts on the Application of the Principles of 'Natural Selection' and 'Inheritance' to Political Society. By Walter Bagehot. Third Edition. Crown 8vo. price 4s.
- III. FOODS. By Edward Smith, M.D., LL.B., F.R.S. With numerous Illustrations. Fourth Edition. Crown 8vo. price 5s.
- IV. MIND AND BODY: the Theories of their Relation. By Alexander Bain, LL.D. With Four Illustrations. Fifth Edition. Crown 8vo. price 4s.
- V. THE STUDY OF SOCIOLOGY. By Herbert Spencer. Sixth Edition. Crown 8vo. price 5s.
- VI. ON THE CONSERVATION OF ENERGY. By Balfour Stewart, M.A., LL.D., F.R.S. With 14 Illustrations. Third Edition. Crown 8vo. price 5s.
- VII. ANIMAL LOCOMOTION; or, Walking, Swimming, and Flying. By J. B. Pettigrew, M.D., F.R.S., &c. With 130 Illustrations. Second Edition. Crown 8vo. price 5s.
- VIII. RESPONSIBILITY IN MENTAL DISEASE. By Henry Maudsley, M.D. Second Edition. Crown 8vo. price 5s.
- IX. THE NEW CHEMISTRY. By Professor J. P. Cooke, of the Harvard University. With 31 Illustrations. Third Edition. Crown 8vo. price 5s.
- X. THE SCIENCE OF LAW. By Professor Sheldon Amos. Second Edition. Crown 8vo. price 5s.
- XI. ANIMAL MECHANISM: a Treatise on Terrestrial and Aerial Locomotion. By Professor E. J. Marey. With 117 Illustrations. Second Edition. Crown 8vo. price 5s.
- XII. THE DOCTRINE OF DESCENT AND DARWINISM. By Professor Oscar Schmidt (Strasburg University). With 26 Illustrations. Third Edition. Crown 8vo. price 5s.
- XIII. THE HISTORY OF THE CONFLICT BETWEEN RELIGION AND SCIENCE. By J. W. Draper, M.D., LL.D. Tenth Edition. Crown 8vo. price 5s.
- XIV. FUNGI: their Nature, Influences, Uses, &c. By M. C. Cooke, M.D., LL.D. Edited by the Rev. M. J. Berkeley, M.A., F.L.S. With numerous Illustrations. Second Edition. Crown 8vo. price 5s.
- XV. THE CHEMICAL EFFECTS OF LIGHT AND PHOTOGRAPHY. By Dr. Hermann Vogel (Polytechnic Academy of Berlin). Translation thoroughly revised. With 100 Illustrations. Third Edition. Crown 8vo. price 5s.
- XVI. THE LIFE AND GROWTH OF LANGUAGE. By William Dwight Whitney, Professor of Sanscrit and Comparative Philology in Yale College, Newhaven. Second Edition. Crown 8vo. price 5s.
- XVII. MONEY AND THE MECHANISM OF EXCHANGE. By W. Stanley Jevons, M.A., F.R.S. Third Edition. Crown 8vo. price 5s.
- XVIII. THE NATURE OF LIGHT. With a General Account of Physical Optics. By Dr. Eugene Lommel, Professor of Physics in the University of Erlangen. With 188 Illustrations and a Table of Spectra in Chromo-lithography. Second Edition. Crown 8vo. price 5s.
- XIX. ANIMAL PARASITES AND MESSELMATES. By Monsieur Van Beneden, Professor of the University of Louvain, Correspondent of the Institute of France. With 83 Illustrations. Second Edition. Crown 8vo. price 5s.
- XX. FERMENTATION. By Professor Schützenberger, Director of the Chemical Laboratory at the Sorbonne. With 28 Illustrations. Second Edition. Crown 8vo. price 5s.

XXI. THE FIVE SENSES OF MAN. By Professor Bernstein, of the University of Halle. With 91 Illustrations. Second Edition. Crown 8vo. price 5s.

XXII. THE THEORY OF SOUND IN ITS RELATION TO MUSIC. By Professor Pietro Blaserna, of the Royal University of Rome. With numerous Illustrations. Second Edition. Crown 8vo. price 5s.

Forthcoming Volumes.

Prof. W. KINGDON CLIFFORD, M.A.
The First Principles of the Exact Sciences Explained to the Non-Mathematical.

Prof. T. H. HUXLEY, LL.D., F.R.S.
Bodily Motion and Consciousness.

W. B. CARPENTER, LL.D., F.R.S. The
Physical Geography of the Sea.

Sir JOHN LUBBOCK, Bart., F.R.S. On
Ants and Bees.

Prof. W. T. THISELTON DYER, B.A., B.Sc.
Form and Habit in Flowering Plants.

Mr. J. NORMAN LOCKYER, F.R.S.
Spectrum Analysis.

Prof. MICHAEL FOSTER, M.D. Proto-
plasm and the Cell Theory.

H. CHARLTON BASTIAN, M.D., F.R.S.
The Brain as an Organ of Mind.

Prof. A. C. RAMSAY, LL.D., F.R.S.,
Earth Sculpture: Hills, Valleys, Mountains, Plains, Rivers, Lakes; how they were produced, and how they have been destroyed.

Prof. J. ROSENTHAL. General Physiology
of Muscles and Nerves.

P. BERT (Professor of Physiology, Paris).
Forms of Life and other Cosmical
Conditions.

Prof. CORFIELD, M.A., M.D. (Oxon.)
Air in its Relation to Health.

MILITARY WORKS.

ANDERSON (*Col. R. P.*)—VICTORIES AND DEFEATS: an Attempt to explain the Causes which have led to them. An Officer's Manual. Demy 8vo. price 14s.

ARMY OF THE NORTH GERMAN CONFEDERATION: a Brief Description of its Organisation, of the Different Branches of the Service and their rôle in War, of its Mode of Fighting, &c. Translated from the Corrected Edition, by permission of the Author, by Colonel Edward Newdigate. Demy 8vo. price 5s.

BRIALMONT (*Col. A.*)—HASTY INTRENCHMENTS. Translated by Lieut. Charles A. Empson, R.A. With Nine Plates. Demy 8vo. price 6s.

BLUME (*Maj. W.*)—THE OPERATIONS OF THE GERMAN ARMIES IN FRANCE, from Sedan to the end of the War of 1870-71. With Map. From the Journals of the Head-quarters Staff. Translated by the late E. M. Jones, Maj. 20th Foot, Prof. of Mil. Hist., Sandhurst. Demy 8vo. price 9s.

BOGUSLAWSKI (*Capt. A. von*)—TACTICAL DEDUCTIONS FROM THE WAR OF 1870-1. Translated by Colonel Sir Lumley Graham, Bart., late 18th (Royal Irish) Regiment. Third Edition, Revised and Corrected. Demy 8vo. price 7s.

CLERY (*C.*) *Capt.*—MINOR TACTICS. With 26 Maps and Plans. Third and revised Edition. Demy 8vo. cloth, price 16s.

DU VERNOIS (Col. von Verdy)—STUDIES IN LEADING TROOPS. An authorised and accurate Translation by Lieutenant H. J. T. Hildyard, 71st Foot. Parts I. and II. Demy 8vo. price 7s.

GOETZE (Capt. A. von)—OPERATIONS OF THE GERMAN ENGINEERS DURING THE WAR OF 1870-1. Published by Authority, and in accordance with Official Documents. Translated from the German by Colonel G. Graham, V.C., C.B., R.E. With 6 large Maps. Demy 8vo. price 21s.

HARRISON (Lieut.-Col. R.)—THE OFFICER'S MEMORANDUM BOOK FOR PEACE AND WAR. Oblong 32mo. roan, elastic band and pencil, price 2s. 6d.; russia, 5s.

HELVIG (Capt. H.)—THE OPERATIONS OF THE BAVARIAN ARMY CORPS. Translated by Captain G. S. Schwabe. With Five large Maps. In 2 vols. Demy 8vo. price 24s.

TACTICAL EXAMPLES: the Battalion. Translated from the German by Col. Sir Lumley Graham. With nearly 300 Diagrams. Demy 8vo. cloth, price 15s.

HOFFBAUER (Capt.)—THE GERMAN ARTILLERY IN THE BATTLES NEAR METZ. Based on the Official Reports of the German Artillery. Translated by Captain E. O. Hollist. With Map and Plans. Demy 8vo. price 21s.

LAYMANN (Capt.)—THE FRONTAL ATTACK OF INFANTRY. Translated by Colonel Edward Newdigate. Crown 8vo. price 2s. 6d.

MIRUS (Maj.-Gen. von)—CAVALRY FIELD DUTY. Translated by Major Frank S. Russell 14th (King's) Hussars. Crown 8vo. cloth limp, price 7s. 6d.

PAGE (Capt. S. F.)—DISCIPLINE AND DRILL. Cheaper Edition. Crown 8vo. price 1s.

PUBLIC SCHOOLBOY: the Volunteer, the Militiaman, and the Regular Soldier. Crown 8vo. cloth, price 5s.

SCHELL (Maj. von)—THE OPERATIONS OF THE FIRST ARMY UNDER GEN. VON GOEBEN. Translated by Col. C. H. von Wright. Four Maps. demy 8vo. price 9s.

THE OPERATIONS OF THE FIRST ARMY UNDER GEN. VON STEINMETZ. Translated by Captain E. O. Hollist. Demy 8vo. price 10s. 6d.

SCHELLENDORF (Major-Gen. B. von)—THE DUTIES OF THE GENERAL STAFF. Translated from the German by Lieutenant Hare. Vol. I. Demy 8vo. cloth, 10s. 6d.

SCHERFF (Maj. W. von)—STUDIES IN THE NEW INFANTRY TACTICS. Parts I. and II. Translated from the German by Colonel Lumley Graham. Demy 8vo. price 7s. 6d.

SHADWELL (Maj.-Gen.) C.B.—MOUNTAIN WARFARE. Illustrated by the Campaign of 1799 in Switzerland. Being a Translation of the Swiss Narrative compiled from the Works of the Archduke Charles, Jomini, and others. Also of Notes by General H. Dufour on the Campaign of the Valtelline in 1635. With Appendix, Maps, and Introductory Remarks. Demy 8vo. price 16s.

SHERMAN (Gen. W. T.)—MEMOIRS OF GENERAL W. T. SHERMAN, Commander of the Federal Forces in the American Civil War. By Himself. 2 vols. With Map. Demy 8vo. price 24s. Copyright English Edition.

STUBBS (Lieut.-Col. F. W.)—THE REGIMENT OF BENGAL ARTILLERY. The History of its Organisation, Equipment, and War Services. Compiled from Published Works, Official Records, and various Private Sources. With numerous Maps and Illustrations. 2 vols. demy 8vo. price 32s.

STUMM (Lieut. Hugo), German Military Attaché to the Khivan Expedition.—RUSSIA'S ADVANCE EASTWARD. Based on the Official Reports of. Translated by Capt. C. E. H. VINCENT, With Map. Crown 8vo. price 6s.

VINCENT (*Capt. C. E. H.*)—**ELEMENTARY MILITARY GEOGRAPHY, RECONNOITRING, AND SKETCHING.** Compiled for Non-commissioned Officers and Soldiers of all Arms. Square crown 8vo. price 2s. 6d.

WICKHAM (*Capt. E. H., R.A.*)—**INFLUENCE OF FIREARMS UPON TACTICS:** Historical and Critical Investigations. By an OFFICER OF SUPERIOR RANK (in the German Army). Translated by Captain E. H. Wickham, R.A. Demy 8vo. price 7s. 6d.

WOJNOVITS (*Capt. I.*)—**AUSTRIAN CAVALRY EXERCISE.** Translated by Captain W. S. Cooke. Crown 8vo. price 7s.

WARTENSLEBEN (*Count H. von.*)—**THE OPERATIONS OF THE SOUTH ARMY IN JANUARY AND FEBRUARY, 1871.** Compiled from the Official War Documents of the Headquarters of the Southern Army. Translated by Colonel C. H. von Wright. With Maps. Demy 8vo. price 6s.

THE OPERATIONS OF THE FIRST ARMY UNDER GEN. VON MANTEUFFEL. Translated by Colonel C. H. von Wright. Uniform with the above. Demy 8vo. price 9s.

WHITE (*Capt. F. B. P.*)—**THE SUBSTANTIVE SENIORITY ARMY LIST—MAJORS AND CAPTAINS.** 8vo. sewed, price 2s. 6d.

POETRY.

ABBEY (*Henry*)—**BALLADS OF GOOD DEEDS, and other Verses.** Fcp. 8vo. cloth gilt, price 5s.

ADAMS (*W. D.*)—**LYRICS OF LOVE,** from Shakespeare to Tennyson. Selected and arranged by. Fcp. 8vo. cloth extra, gilt edges, price 3s. 6d.

Also, a Cheaper Edition. Fcp. 8vo. cloth, 2s. 6d.

ADAMS (*John*) *M.A.*—**ST. MALO'S QUEST, and other Poems.** Fcp. 8vo. price 5s.

ADON—**THROUGH STORM AND SUNSHINE.** Illustrated by M. E. Edwards, A. T. H. Paterson, and the Author. Crown 8vo. price 7s. 6d.

AURORA: a Volume of Verse. Fcp. 8vo. cloth, price 5s.

BARING (*T. C.*) *M.A., M.P.*—**PINDAR IN ENGLISH RHYME.** Being an Attempt to render the Epinikian Odes with the principal remaining Fragments of Pindar into English Rhymed Verse. Small 4to. price 7s.

BAYNES (*Rev. Canon R. H.*) *M.A.*—**HOME SONGS FOR QUIET HOURS.** Third Edition. Fcp. 8vo. cloth extra, price 3s. 6d.

This may also be had handsomely bound in morocco with gilt edges.

Also, a Cheaper Edition. Fcp. 8vo. price 2s. 6d.

BENNETT (*Dr. W. C.*)—**BABY MAY:** Home Poems and Ballads. With Frontispiece. Crown 8vo. cloth elegant, price 6s.

BABY MAY AND HOME POEMS. Fcp. 8vo. sewed, in Coloured Wrapper, price 1s.

NARRATIVE POEMS AND BALLADS. Fcp. 8vo. sewed, in Coloured Wrapper, price 1s.

SONGS FOR SAILORS. Dedicated by Special Request to H.R.H. the Duke of Edinburgh. With Steel Portrait and Illustrations. Crown 8vo. price 3s. 6d.

An Edition in Illustrated Paper Covers, price 1s.

SONGS OF A SONG WRITER. Crown 8vo. price 6s.

BOSWELL (*R. B.*) *M.A., Oxon.*—**METRICAL TRANSLATIONS FROM THE GREEK AND LATIN POETS, and other Poems.** Crown 8vo. price 5s.

BRYANT (*W. C.*)—**POEMS.** Red-line Edition. With 24 Illustrations and Portrait of the Author. Crown 8vo. cloth extra, price 7s. 6d.

A Cheap Edition, with Frontispiece. Small crown 8vo. price 3s. 6d.

BUCHANAN (*Robt.*)—**POETICAL WORKS.** Collected Edition, in 3 vols. with Portrait. Crown 8vo. price 6s. each.

MASTER-SPIRITS. Post 8vo. price 10s. 6d.

BULKELEY (Rev. H. F.)—WALLED IN, and other Poems. Crown 8vo. price 5s.

COSMOS: a Poem. Fcp. 8vo. price 3s. 6d.

CALDERON'S DRAMAS: the Wonder-Working Magician—Life in a Dream—the Purgatory of St. Patrick. Translated by Denis Florence MacCarthy. Post 8vo. price 10s.

CARPENTER (E.)—NARCISSUS, and other Poems. Fcp. 8vo. price 5s.

COLLINS (Mortimer)—INN OF STRANGE MEETINGS, and other Poems. Crown 8vo. cloth, price 5s.

CORY (Lieut.-Col. Arthur)—IONE: a Poem in Four Parts. Fcp. 8vo. cloth, price 5s.

CRESSWELL (Mrs. G.)—THE KING'S BANNER: Drama in Four Acts. Five Illustrations. 4to. price 10s. 6d.

DENNIS (F.)—ENGLISH SONNETS. Collected and Arranged. Elegantly bound. Fcp. 8vo. price 3s. 6d.

DE VERE (Aubrey)—ALEXANDER THE GREAT: a Dramatic Poem. Small crown 8vo. price 5s.

THE INFANT BRIDAL, and other Poems. A New and Enlarged Edition. Fcp. 8vo. price 7s. 6d.

THE LEGENDS OF ST. PATRICK, and other Poems. Small crown 8vo. price 5s.

ST. THOMAS OF CANTERBURY: a Dramatic Poem. Large fcp. 8vo. price 5s.

ANTAR AND ZARA: an Eastern Romance. INISFAIL, and other Poems, Meditative and Lyrical. Fcp. 8vo. price 6s.

THE FALL OF RORA, THE SEARCH AFTER PROSERPINE, and other Poems, Meditative and Lyrical. Fcp. 8vo. 6s.

DOBSON (Austin)—VIGNETTES IN RHYME, and Vers de Société. Third Edition. Fcp. 8vo. price 5s.

PROVERBS IN PORCELAIN. By the Author of 'Vignettes in Rhyme.' Third Edition. Crown 8vo. price 6s.

DOWDEN (Edward) LL.D.—POEMS. Second Edition. Fcp. 8vo. price 5s.

DOWNTON (Rev. H.) M.A.—HYMNS AND VERSES. Original and Translated. Small crown 8vo. cloth, price 3s. 6d.

DURAND (Lady)—IMITATIONS FROM THE GERMAN OF SPITTA AND TERSTEGEN. Fcp. 8vo. price 4s.

EDWARDS (Rev. Basil)—MINOR CHORDS; or, Songs for the Suffering: a Volume of Verse. Fcp. 8vo. cloth, price 3s. 6d.; paper, price, 2s. 6d.

ELLIOTT (Ebenezer), *The Corn Law Rhymers*.—POEMS. Edited by his son, the Rev. Edwin Elliott, of St. John's, Antigua. 2 vols. crown 8vo. price 18s.

EROS AGONISTES: Poems. By E. B. D. Fcp. 8vo. price 3s. 6d.

EYRE (Maj.-Gen. Sir V.) C.B., K.C.S.I., &c.—LAYS OF A KNIGHT-ERRANT IN MANY LANDS. Square crown 8vo. with Six Illustrations, price 7s. 6d.

FERRIS (Henry Weybridge)—POEMS. Fcp. 8vo. price 5s.

GARDNER (H.)—SUNFLOWERS: a Book of Verses. Fcp. 8vo. price 5s.

GOLDIE (Lieut. M. H. G.)—HEBE: a Tale. Fcp. 8vo. price 5s.

HARCOURT (Capt. A. F. P.)—THE SHAKESPEARE ARGOSY. Containing much of the wealth of Shakespeare's Wisdom and Wit, alphabetically arranged and classified. Crown 8vo. price 6s.

HEWLETT (Henry G.)—A SHEAF OF VERSE. Fcp. 8vo. price 3s. 6d.

HOLMES (E. G. A.)—POEMS. Fcp. 8vo. price 5s.

HOWARD (Rev. G. B.)—AN OLD LEGEND OF ST. PAUL'S. Fcp. 8vo. price 4s. 6d.

HOWELL (James)—A TALE OF THE SEA, Sonnets, and other Poems. Fcp. 8vo. price 5s.

HUGHES (Allison)—PENELOPE, and other Poems. Fcp. 8vo. price 4s. 6d.

INCHBOLD (F. W.)—ANNUS AMORIS Sonnets. Fcp. 8vo. price 4s. 6d.

KING (*Mrs. Hamilton*)—THE DISCIPLES: a New Poem. Third Edition, with some Notes. Crown 8vo. price 7s. 6d.
ASPRMONTE, and other Poems. Second Edition. Fcp. 8vo. price 4s. 6d.

KNIGHT (*A. F. C.*)—POEMS. Fcp. 8vo. price 5s.

LADY OF LIPARI (*The*): a Poem in Three Cantos. Fcp. 8vo. price 5s.

LOCKER (*F.*)—LONDON LYRICS. A New and Revised Edition, with Additions and a Portrait of the Author. Crown 8vo. cloth elegant, price 6s.

Also, a Cheaper Edition. Fcp. 8vo. price 2s. 6d.

LUCAS (*Alice*)—TRANSLATIONS FROM THE WORKS OF GERMAN POETS OF THE 18TH AND 19TH CENTURIES. Fcp. 8vo. price 5s.

MORICE (*Rev. F. D.*) *M.A.*—THE OLYMPIAN AND PYTHIAN ODES OF PINDAR. A New Translation in English Verse. Crown 8vo. price 7s. 6d.

MORSEHEAD (*E. D. A.*)—THE AGAMEMNON OF ÆSCHYLUS. Translated into English Verse. With an Introductory Essay. Crown 8vo. cloth, price 5s.

NEW WRITER (*A.*)—SONGS OF TWO WORLDS. By a New Writer. Third Series. Second Edition. Fcp. 8vo. price 5s.

THE EPIC OF HADES. By the Author of 'Songs of Two Worlds.' Third Edition. Fcp. 8vo. price 7s. 6d.

NICHOLSON (*Edward B.*) *Librarian of the London Institution*—THE CHRIST CHILD, and other Poems. Crown 8vo. cloth, price 4s. 6d.

NOAKE (*Major R. Compton*)—THE BIVOUAC; or, Martial Lyrist. With an Appendix: Advice to the Soldier. Fcp. 8vo. price 5s. 6d.

NORRIS (*Rev. Alfred*)—THE INNER AND OUTER LIFE POEMS. Fcp. 8vo. cloth, price 6s.

PAYNE (*John*)—SONGS OF LIFE AND DEATH. Crown 8vo. cloth, price 5s.

PAUL (*C. Kegan*)—GOETHE'S FAUST. A New Translation in Rhyme. Crown 8vo. price 6s.

PEACOCKE (*Georgiana*)—RAYS FROM THE SOUTHERN CROSS: Poems. Crown 8vo. with Sixteen Full-page Illustrations by the Rev. P. Walsh, cloth elegant, price 10s. 6d.

PENNELL (*H. Cholmondeley*)—PEGASUS RESADDLED. By the Author of 'Puck on Pegasus,' &c. &c. With Ten Full-page Illustrations by George Du Maurier. Fcp. 4to. cloth elegant, 12s. 6d.

PFEIFFER (*Emily*)—GLAN ALARCH: His Silence and Song: a Poem. Crown 8vo. price 6s.

GERARD'S MONUMENT and other Poems. Second Edition. Crown 8vo. cloth, price 6s.

POWLETT (*Lieut. N.*) *R.A.*—EASTERN LEGENDS AND STORIES IN ENGLISH VERSE. Crown 8vo. price 5s.

RHOADES (*James*)—TIMOLEON: a Dramatic Poem. Fcp. 8vo. price 5s.

SCOTT (*Patrick*)—THE DREAM AND THE DEED, and other Poems. Fcp. 8vo. price 5s.

SONGS FOR MUSIC. By Four Friends. Square crown 8vo. price 5s. Containing Songs by Reginald A. Gatty, Stephen H. Gatty, Greville J. Chester, and Juliana Ewing.

SPICER (*H.*)—OTHO'S DEATH WAGER: a Dark Page of History Illustrated. In Five Acts. Fcp. 8vo. cloth, price 5s.

STONEHEWER (*Agnes*)—MONACELLA: a Legend of North Wales. A Poem. Fcp. 8vo. cloth, price 3s. 6d.

SWEET SILVERLY SAYINGS OF SHAKESPEARE. Crown 8vo. cloth gilt, price 7s. 6d.

TAYLOR (*Rev. J. W. A.*) *M.A.*—POEMS. Fcp. 8vo. price 5s.

TAYLOR (*Sir H.*)—WORKS COMPLETE in Five Volumes. Crown 8vo. cloth, price 30s.

TENNYSON (*Alfred*)—HAROLD: a Drama. Crown 8vo. price 6s.

QUEEN MARY: a Drama. New Edition. Crown 8vo. price 6s.

TENNYSON (A.)—Works Complete :—
THE IMPERIAL LIBRARY EDITION.
Complete in 7 vols. demy 8vo. price
10s. 6d. each; in Roxburgh binding,
12s. 6d. (*See p. 31.*)

AUTHOR'S EDITION. In Six Volumes.
Post 8vo. cloth gilt; or half-morocco.
Roxburgh style. (*See p. 31.*)

CABINET EDITION. 12 Volumes. Each
with Frontispiece. Fcp. 8vo. price
2s. 6d. each. (*See p. 31.*)

CABINET EDITION. 12 vols. Complete
in handsome Ornamental Case. (*See
p. 31.*)

Original Editions :—

POEMS. Small 8vo. price 6s.

MAUD, and other Poems. Small 8vo.
price 3s. 6d.

THE PRINCESS. Small 8vo. price 3s. 6d.

IDYLLS OF THE KING. Small 8vo.
price 5s.

IDYLLS OF THE KING. Complete.
Small 8vo. price 6s.

THE HOLY GRAIL, and other Poems.
Small 8vo. price 4s. 6d.

GARETH AND LYNETTE. Small 8vo.
price 3s.

ENOCH ARDEN, &c. Small 8vo. price
3s. 6d.

IN MEMORIAM. Small 8vo. price 4s.

SELECTIONS FROM THE ABOVE WORKS.
Super royal 16mo. price 3s. 6d.; cloth
gilt extra, price 4s.

SONGS FROM THE ABOVE WORKS.
16mo. cloth, price 2s. 6d.

POCKET VOLUME EDITION. 13 vols.
in neat case, price 36s.
Ditto, ditto. Extra cloth gilt, in case,
price 42s.

**SHILLING EDITION OF THE POETICAL
WORKS.** In 10 vols. pocket size,
1s. each, sewed.

TENNYSON'S IDYLLS OF THE KING, and
other Poems. Illustrated by Julia
Margaret Cameron. 2 vols. folio.
half-bound morocco, cloth sides, price
£6. 6s. each.

**TENNYSON FOR THE YOUNG AND FOR
RECITATION.** Specially arranged.
Fcp. 8vo. 1s. 6d.

TENNYSON BIRTHDAY BOOK. Edited by
Emily Shakespear. 32mo. cloth limp,
2s.; cloth extra, 3s.

THOMPSON (Alice C.)—PRELUDES : a
Volume of Poems. Illustrated by
Elizabeth Thompson (Painter of 'The
Roll Call'). 8vo. price 7s. 6d.

THOUGHTS IN VERSE. Small crown 8vo.
price 1s. 6d.

THRING (Rev. Godfrey), B.A.—HYMNS
AND SACRED LYRICS. Fcp. 8vo.
price 5s.

TODD (Herbert) M.A.—ARVAN; or, the
Story of the Sword. A Poem. Crown
8vo. price 7s. 6d.

TODHUNTER (Dr. J.)—LAURELLA,
and other Poems. Crown 8vo. price
6s. 6d.

TURNER (Rev. C. Tennyson)—SONNETS,
LYRICS, AND TRANSLATIONS. Crown
8vo. cloth, price 4s. 6d.

WATERFIELD (W.)—HYMNS FOR
HOLY DAYS AND SEASONS. 32mo.
cloth, price 1s. 6d.

WAY (A.) M.A.—THE ODES OF HORACE
LITERALLY TRANSLATED IN METRE.
Fcp. 8vo. price 2s.

WILLOUGHBY (The Hon. Mrs.)—ON
THE NORTH WIND—THISTLEDOWN :
a Volume of Poems. Elegantly bound,
small crown 8vo. price 7s. 6d.

LIBRARY NOVELS.

AYRTON (J. C.)—A SCOTCH WOOLING.
2 vols. crown 8vo.

BLUE ROSES; or, Helen Malinofska's
Marriage. By the Author of 'Véra.'
Fifth Edition. 2 vols. cloth, gilt tops,
12s.

BUNNETT (F. E.)—LINKED AT LAST.
Crown 8vo.

CADELL (Mrs. H. M.)—IDA CRAVEN :
a Novel. 2 vols. crown 8vo.

CARR (Lisle)—JUDITH GWYNNE. 3 vols.
Second Edition. Crown 8vo.

- CHAPMAN (Hon. Mrs. E. W.)* — A
CONSTANT HEART : a Story. 2 vols.
cloth, gilt tops, 12s.
- CLAYTON (Cecil)* — EFFIE'S GAME ; How
She Lost and how She Won : a
Novel. 2 vols.
- COLLINS (Mortimer)* — THE PRINCESS
CLARICE : a Story of 1871. 2 vols.
SQUIRE SILCHESTER'S WHIM. 3 vols.
- MIRANDA : a Midsummer Madness.
3 vols.
- CONYERS (Ansley)* — CHESTERLEIGH.
3 vols. crown 8vo.
- COTTON (R. T.)* — MR. CARINGTON : a
Tale of Love and Conspiracy. 3 vols.
crown 8vo.
- DE WILLE (E.)* — UNDER A CLOUD ; or,
Johannes Olaf : a Novel. Trans-
lated by F. E. Bunnëtt. 3 vols.
Crown 8vo.
- EILOART (Mrs.)* — LADY MORETOUN'S
DAUGHTER. 3 vols. crown 8vo.
- FAITHFULL (Mrs. Francis G.)* — LOVE
ME, OR LOVE ME NOT. 3 vols.
crown 8vo.
- FENN (G. M.)* — A LITTLE WORLD : a
Novel. In 3 vols.
- FISHER (Alice)* — HIS QUEEN. 3 vols.
crown 8vo.
- FOTHERGILL (Jessie)* — ALDYTH : a
Novel. 2 vols. crown 8vo. 21s.
- HEALEY : a Romance. 3 vols. cr. 8vo.
- GRAY (Mrs. Russell)* — LISETTE'S VEN-
TURE : a Novel. 2 vols. crown 8vo.
- GRIFFITHS (Capt. Arthur)* — THE
QUEEN'S SHILLING : a Novel. 2 vols.
- HAWTHORNE (Julian)* — BRESSANT : a
Romance. 2 vols. crown 8vo.
- IDOLATRY : a Romance. 2 vols. cr. 8vo.
- HAWTHORNE (Nathaniel)* — SEPTI-
MIUS : a Romance. Second Edition.
Crown 8vo. cloth, price 9s.
- HEATHERGATE : a Story of Scottish Life
and Character. By a New Author.
2 vols. crown 8vo.
- HOGAN, M.P. : a Novel. 3 vols. cr. 8vo.
- HOCKLEY (W. B.)* — TALES OF THE
ZENANA ; or, a Nuwab's Leisure
Hours. By the Author of 'Pandu-
rang Hari.' With a Preface by Lord
Stanley of Alderley. 2 vols. crown
8vo. cloth, price 21s.
- INGELOIV (Jean)* — OFF THE SKELLIGS.
(Her First Romance.) 4 vols. cr. 8vo.
- KEATINGE (Mrs.)* — HONOR BLAKE :
the Story of a Plain Woman. 2 vols.
crown 8vo.
- LISTADO (J. T.)* — CIVIL SERVICE : a
Novel. 2 vols. crown 8vo.
- LOVEL (Edward)* — THE OWL'S NEST IN
THE CITY : a Story. Crown 8vo.
price 10s. 6d.
- MACDONALD (G.)* — MALCOLM : a
Novel. 3 vols. Second Edition.
Crown 8vo.
- ST. GEORGE AND ST. MICHAEL. 3
vols. crown 8vo.
- MARKEWITCH (B.)* — THE NEGLECTED
QUESTION. Translated from the Rus-
sian by the Princess Ourousoff. 2 vols.
crown 8vo. 14s.
- MARSHALL (H.)* — THE STORY OF SIR
EDWARD'S WIFE : a Novel. Crown
8vo. price 10s. 6d.
- MORLEY (Susan)* — AILEEN FERRERS : a
Novel. 2 vols. crown 8vo.
- THROSTLETHWAITE : a Novel. 3 vols.
Crown 8vo.
- MARGARET CHETWYND : a Novel. 3
vols. crown 8vo.
- MOSTYN (Sydney)* — PERPLEXITY : a
Novel. 3 vols. crown 8vo.
- MY SISTER ROSALIND : a Novel. By
the Author of 'Christiana North,' and
'Under the Limes.' 2 vols.
- SAUNDERS (John)* — ISRAEL MORT,
OVERMAN : a Story of the Mine. 3
vols. crown 8vo.
- SAUNDERS (Katherine)* — THE HIGH
MILLS : a Novel. 3 vols. crown 8vo.

SHAW (Flora L.)—CASTLE BLAIR : a Story of Youthful Lives. 2 vols. crown 8vo. cloth, price 12s.

SHELDON (Philip)—WOMAN'S A RID-
DLE; or, Baby Warmstrey : a Novel.
3 vols. crown 8vo. cloth.

STRETTON (Hesba)—HESTER MORLEY'S
PROMISE. 3 vols. crown 8vo. cloth.
THE DOCTOR'S DILEMMA. 3 vols.
crown 8vo. cloth.

*TAYLOR (Colonel Meadows) C.S.I.,
M.R.I.A.*—SEETA : a Novel. 3 vols.
crown 8vo.

A NOBLE QUEEN. 3 vols. crown 8vo.

THOMASINA : a Novel. 2 vols. cr. 8vo.

TRAVERS (Mar.)—THE SPINSTERS OF
BLATCHINGTON : a Novel. 2 vols.
crown 8vo.

VANESSA. By the Author of 'Thoma-
sina' &c. a Novel. 2 vols. Second
Edition. Crown 8vo.

WAITING FOR TIDINGS. By the Author
of 'White and Black.' 3 vols. cr. 8vo.

WEDMORE (F.)—TWO GIRLS. 2 vols.
crown 8vo.

WHAT 'TIS TO LOVE. By the Author
of 'Flora Adair,' 'The Value of
Fosterstown.' 3 vols. crown 8vo.

YORKE (Stephen)—CLEVEDEN : a Novel.
2 vols. crown 8vo.

WORKS OF FICTION IN ONE VOLUME.

BETHAM-EDWARDS (Miss M.)
KITTY. With a Frontispiece. Crown
8vo. price 6s.

CLERK (Mrs. Godfrey)—'ILÂM EN NÂS :
Historical Tales and Anecdotes of the
Times of the Early Khalifas. Trans-
lated from the Arabic Originals. Illus-
trated with Historical and Explanatory
Notes. Crown 8vo. cloth, price 7s.

GARRETT (E.)—BY STILL WATERS : a
Story for Quiet Hours. With Seven
Illustrations. Crown 8vo. price 6s.

HARDY (Thomas)—A PAIR OF BLUE
EYES. Author of 'Far from the Mad-
ding Crowd.' Crown 8vo. price 6s.

HAWTHORNE (N.)—SEPTIMIUS : a
Romance. Second Edition. Crown
8vo. price 9s.

HOWARD (Mary M.)—BEATRICE AYL-
MER, and other Tales. Crown 8vo.
price 6s.

IGNOTUS—CULMSHIRE FOLK : a Novel.
New and Cheaper Edition. Crown
8vo. price 6s.

MACDONALD (G.)—MALCOLM. With
Portrait of the Author engraved on
Steel. Fourth Edition. Crown 8vo.
price 6s.

MEREDITH (George)—ORDEAL OF
RICHARD FEVEREL. New Edition.
Crown 8vo. cloth, price 6s.

PALGRAVE (W. Gifford)—HERMANN
AGHA : an Eastern Narrative. Third
Edition. Crown 8vo. cloth, price 6s.

PANDURANG HARI; or, Memoirs of a
Hindoo. With an Introductory Pre-
face by Sir H. Bartle E. Frere,
G.C.S.I., C.B. Crown 8vo. price 6s.

REGINALD BRAMBLE : a Cynic of the
Nineteenth Century. An Autobiog-
raphy. Crown 8vo. price 10s. 6d.

SAUNDERS (John)—ISRAEL MORT,
OVERMAN : a Story of the Mine.
Crown 8vo. price 6s.

SAUNDERS (Katherine)—GIDEON'S
ROCK, and other Stories. Crown 8vo.
price 6s.

JOAN MERRYWEATHER, and other
Stories. Crown 8vo. price 6s.

MARGARET AND ELIZABETH : a Story
of the Sea. Crown 8vo. price 6s.

TAYLOR (Col. Meadows) C.S.I., M.R.I.A.
THE CONFESSIONS OF A THUG.
Crown 8vo. price 6s.

TARA : a Mahratta Tale. Crown 8vo.
price 6s.

CORNHILL LIBRARY of FICTION
(The). Crown 8vo. price 3s. 6d. per
volume.

HALF-A-DOZEN DAUGHTERS. By J.
Masterman.

CORNHILL LIBRARY of FICTION.

THE HOUSE OF RABY. By Mrs. G. Hooper.

A FIGHT FOR LIFE. By Moy Thomas.

ROBIN GRAY. By Charles Gibbon.

ONE OF TWO; or, The Left-Handed Bride. By J. Hain Friswell.

CORNHILL LIBRARY of FICTION.

GOD'S PROVIDENCE HOUSE. By Mrs. G. L. Banks.

FOR LACK OF GOLD. By Charles Gibbon.

ABEL DRAKE'S WIFE. By John Saunders.

HIRELL. By John Saunders.

CHEAP FICTION.

GIBBON (Charles)—FOR LACK OF GOLD. With a Frontispiece. Crown 8vo. Illustrated Boards, price 2s.

ROBIN GRAY. With a Frontispiece. Crown 8vo. Illustrated boards, price 2s.

SAUNDERS (John)—HIRELL. With Frontispiece. Crown 8vo. Illustrated boards, price 2s.

ABEL DRAKE'S WIFE. With Frontispiece. Illustrated boards, price 2s.

BOOKS FOR THE YOUNG.

AUNT MARY'S BRAN PIE. By the Author of 'St. Olave's.' Illustrated. Price 3s. 6d.

BARLEE (Ellen)—LOCKED OUT: a Tale of the Strike. With a Frontispiece. Royal 16mo. price 1s. 6d.

BONWICK (J.) F.R.G.S.—THE TASMANIAN LILY. With Frontispiece. Crown 8vo. price 5s.

MIKE HOWE, the Bushranger of Van Diemen's Land. With Frontispiece. Crown 8vo. price 5s.

BRAVE MEN'S FOOTSTEPS. By the Editor of 'Men who have Risen.' A Book of Example and Anecdote for Young People. With Four Illustrations by C. Doyle. Third Edition. Crown 8vo. price 3s. 6d.

CHILDREN'S TOYS, and some Elementary Lessons in General Knowledge which they teach. Illustrated. Crown 8vo. cloth, price 5s.

COLERIDGE (Sara)—PRETTY LESSONS IN VERSE FOR GOOD CHILDREN, with some Lessons in Latin, in Easy Rhyme. A New Edition. Illustrated. Fcp. 8vo. cloth, price 3s. 6d.

D'ANVERS (N. R.)—LITTLE MINNIE'S TROUBLES: an Every-day Chronicle. With 4 Illustrations by W. H. Hughes. Fcp. cloth, price 3s. 6d.

PIXIE'S ADVENTURES; or, the Tale of a Terrier. With 21 Illustrations. 16mo. cloth, price 4s. 6d.

DAVIES (G. Christopher)—MOUNTAIN, MEADOW, AND MERE: a Series of Outdoor Sketches of Sport, Scenery, Adventures, and Natural History. With Sixteen Illustrations by Bosworth W. Harcourt. Crown 8vo. price 6s.

RAMBLES AND ADVENTURES OF OUR SCHOOL FIELD CLUB. With Four Illustrations. Crown 8vo. price 5s.

DRUMMOND (Miss)—TRIPPS BUILDINGS. A Study from Life, with Frontispiece. Small crown 8vo. price 3s. 6d.

EDMONDS (Herbert)—WELL SPENT LIVES: a Series of Modern Biography. Crown 8vo. price 5s.

EVANS (Mark)—THE STORY OF OUR FATHER'S LOVE, told to Children; being a New and Enlarged Edition of Theology for Children. With Four Illustrations. Fcp. 8vo. price 3s. 6d.

FARQUHARSON (M.)

I. **ELSIE DINSMORE.** Crown 8vo. price 3s. 6d.

II. **ELSIE'S GIRLHOOD.** Crown 8vo. price 3s. 6d.

III. **ELSIE'S HOLIDAYS AT ROSELANDS.** Crown 8vo. price 3s. 6d.

HERFORD (Brooke)—THE STORY OF RELIGION IN ENGLAND: a Book for Young Folk. Crown 8vo. cloth, price 5s.

INGELOW (Jean)—THE LITTLE WONDER-HORN. With Fifteen Illustrations. Small 8vo. price 2s. 6d.

KER (David)—THE BOY SLAVE IN BOKHARA: a Tale of Central Asia. With Illustrations. Crown 8vo. price 5s.

THE WILD HORSEMAN OF THE PAMPAS. Illustrated. Crown 8vo. price 5s.

LEANDER (Richard)—FANTASTIC STORIES. Translated from the German by Paulina B. Granville. With Eight Full-page Illustrations by M. E. Fraser-Tytler. Crown 8vo. price 5s.

LEE (Holme)—HER TITLE OF HONOUR. A Book for Girls. New Edition. With a Frontispiece. Crown 8vo. price 5s.

LEWIS (Mary A.)—A RAT WITH THREE TALES. With Four Illustrations by Catherine F. Frere. Price 5s.

LITTLE MINNIE'S TROUBLES: an Everyday Chronicle. With Four Illustrations by W. H. Hughes. Fcap. price 3s. 6d.

MC CLINTOCK (L.)—SIR SPANGLE AND THE DINGY HEN. Illustrated. Square crown 8vo. price 2s. 6d.

MAC KENNA (S. J.)—PLUCKY FELLOWS. A Book for Boys. With Six Illustrations. Fourth Edition. Crown 8vo. price 3s. 6d.

AT SCHOOL WITH AN OLD DRAGOON. With Six Illustrations. Third Edition. Crown 8vo. price 5s.

MALDEN (H. E.)—PRINCES AND PRINCESSES: Two Fairy Tales. Crown 8vo. cloth.

NAAKE (J. T.)—SLAVONIC FAIRY TALES. From Russian, Servian, Polish, and Bohemian Sources. With Four Illustrations. Crown 8vo. price 5s.

PELLETAN (E.)—THE DESERT PASTOR. JEAN JAROUSSEAU. Translated from the French. By Colonel E. P. De L'Hôte. With a Frontispiece. New Edition. Fcap. 8vo. price 3s. 6d.

REANEY (Mrs. G. S.)—WAKING AND WORKING; or, From Girlhood to Womanhood. With a Frontispiece. Crown 8vo. price 5s.

SUNBEAM WILLIE, and other Stories. Three Illustrations. Royal 16mo. price 1s. 6d.

BLESSING AND BLESSED: a Story of Girl Life. Crown 8vo. cloth, price 5s.

SUNSHINE JENNY and other Stories. 3 Illustrations. Royal 16mo. cloth, price 1s. 6d.

ROSS (Mrs. E.), ('Nelsie Brook')—DADDY'S PET. A Sketch from Humble Life. With Six Illustrations. Royal 16mo. price 1s.

SADLER (S. W.) R.N.—THE AFRICAN CRUISER: a Midshipman's Adventures on the West Coast. With Three Illustrations. Second Edition. Crown 8vo. price 3s. 6d.

SEEKING HIS FORTUNE, and other Stories. With Four Illustrations. Crown 8vo. price 3s. 6d.

SEVEN AUTUMN LEAVES FROM FAIRY LAND. Illustrated with Nine Etchings. Square crown 8vo. price 3s. 6d.

STRETTON (Hesba), Author of 'Jessica's First Prayer.'

MICHEL LORIO'S CROSS and other Stories. With Two Illustrations. Royal 16mo. price 1s. 6d.

THE STORM OF LIFE. With Ten Illustrations. Sixteenth Thousand. Royal 16mo. price 1s. 6d.

THE CREW OF THE DOLPHIN. Illustrated. Thirteenth Thousand. Royal 16mo. price 1s. 6d.

STRETTON (Hesba), Author of 'Jessica's First Prayer.'

CASSY. Thirty-fourth Thousand. With Six Illustrations. Royal 16mo. price 1s. 6d.

THE KING'S SERVANTS. Thirty-eighth Thousand. With Eight Illustrations. Royal 16mo. price 1s. 6d.

LOST GIP. Fifty-fourth Thousand. With Six Illustrations. Royal 16mo. price 1s. 6d.

*** Also a handsomely bound Edition, with Twelve Illustrations, price 2s. 6d.*

DAVID LLOYD'S LAST WILL. With Four Illustrations. Royal 16mo. price 2s. 6d.

THE WONDERFUL LIFE. Twelfth Thousand. Fcap. 8vo. price 2s. 6d.

A NIGHT AND A DAY. With Frontispiece. Eighth Thousand. Royal 16mo. limp cloth, price 6d.

FRIENDS TILL DEATH. With Illustrations and Frontispiece. Twentieth Thousand. Royal 16mo. price 1s. 6d.; limp cloth, price 6d.

STRETTON (Hesba), Author of 'Jessica's First Prayer.'

TWO CHRISTMAS STORIES. With Frontispiece. Fifteenth Thousand. Royal 16mo. limp cloth, price 6d.

MICHEL LORIO'S CROSS, AND LEFT ALONE. With Frontispiece. Twelfth Thousand. Royal 16mo. limp cloth, price 6d.

OLD TRANSOME. With Frontispiece. Twelfth Thousand. Royal 16mo. limp cloth, price 6d.

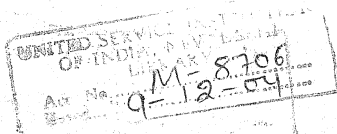
*** Taken from 'The King's Servants.'*

THE WORTH OF A BABY, and How Apple-Tree Court was Won. With Frontispiece. Fifteenth Thousand. Royal 16mo. limp cloth, price 6d.

SUNNYLAND STORIES. By the Author of 'Aunt Mary's Bran Pie.' Illustrated. Small 8vo. price 3s. 6d.

WHITAKER (Florence)—**CHRISTY'S INHERITANCE.** A London Story. Illustrated. Royal 16mo. price 1s. 6d.

ZIMMERN (H.)—**STORIES IN PRECIOUS STONES.** With Six Illustrations. Third Edition. Crown 8vo. price 5s



MR. TENNYSON'S WORKS.

THE IMPERIAL LIBRARY EDITION,

COMPLETE IN SEVEN OCTAVO VOLUMES.

Cloth, price 10s. 6d. per vol. ; 12s. 6d. Roxburgh binding.

CONTENTS.

Vol. I.—MISCELLANEOUS POEMS.

II.—MISCELLANEOUS POEMS.

III.—PRINCESS, AND OTHER POEMS.

Vol. IV.—IN MEMORIAM and MAUD.

V.—IDYLLS OF THE KING.

VI.—IDYLLS OF THE KING.

VII.—DRAMAS.

Printed in large, clear, old-faced type, with a Steel Engraved Portrait of the Author, the set complete, price £3. 13s. 6d. * * * The handsomest Edition published.

THE AUTHOR'S EDITION,

IN SIX VOLUMES. Bound in cloth, 38s. 6d.

CONTENTS.

Vol. I.—EARLY POEMS and ENGLISH IDYLLS. 6s.

II.—LOCKSLEY HALL, LUCRETIVS, and other Poems. 6s.

III.—THE IDYLLS OF THE KING, complete. 7s. 6d.

Vol. IV.—THE PRINCESS and MAUD. 6s.

V.—ENOCH ARDEN and IN MEMORIAM. 6s.

VI.—QUEEN MARY and HAROLD 7s.

This Edition can also be had bound in half-morocco, Roxburgh, price 1s. 6d. per vol. extra.

THE CABINET EDITION,

COMPLETE IN TWELVE VOLUMES. Price 2s. 6d. each.

CONTENTS.

Vol. I.—EARLY POEMS. Illustrated with a Photographic Portrait of Mr. Tennyson.

II.—ENGLISH IDYLLS, and other POEMS. Containing an Engraving of Mr. Tennyson's Residence at Aldworth.

III.—LOCKSLEY HALL, and other POEMS. With an Engraved Picture of Farringford.

IV.—LUCRETIVS, and other POEMS. Containing an Engraving of a Scene in the Garden at Swainston.

V.—IDYLLS OF THE KING. With an Autotype of the Bust of Mr. Tennyson by T. Woolner, R.A.

Vol. VI.—IDYLLS OF THE KING. Illustrated with an Engraved Portrait of 'Elaine,' from a Photographic Study by Julia M. Cameron.

VII.—IDYLLS OF THE KING. Containing an Engraving of 'Arthur,' from a Photographic Study by Julia M. Cameron.

VIII.—THE PRINCESS. With an Engraved Frontispiece.

IX.—MAUD and ENOCH ARDEN. With a Picture of 'Maud,' taken from a Photographic Study by Julia M. Cameron.

X.—IN MEMORIAM. With a Steel Engraving of Arthur H. Hallam, engraved from a picture in possession of the Author, by J. C. Arnytage.

XI.—QUEEN MARY: a Drama. With Frontispiece by Walter Crane.

XII.—HAROLD: a Drama. With Frontispiece by Walter Crane.

* * * These Volumes may be had separately, or the Edition complete, in a handsome ornamental case, price 32s.

THE MINIATURE EDITION,

IN THIRTEEN VOLUMES.

CONTENTS.

Vol. I.—POEMS.

II.—POEMS.

III.—POEMS.

IV.—IDYLLS OF THE KING.

V.—IDYLLS OF THE KING.

VI.—IDYLLS OF THE KING.

Vol. VII.—IDYLLS OF THE KING.

VIII.—IN MEMORIAM.

IX.—PRINCESS.

X.—MAUD.

XI.—ENOCH ARDEN.

XII.—QUEEN MARY.

VOL. XIII.—HAROLD.

Bound in imitation vellum, ornamented in gilt and gilt edges, in case, price 42s. This Edition can also be had in plain binding and case, price 36s.

United Service Institution of India

Library

ISSUE SLIP

Class No. 357 Book No. CAV

Accession No. M- 8706

[illegible]

USI - Library



M04966



United Service Institution of India

Library

Acc. No. M-8706

Class No. 357 Book No. CAV

Author A Cavalry, officer.

Title Notes on cavalry tactics
organization

| Date of Issue | Date of Return | Date of Issue | Date of Return |
|---------------|----------------|---------------|----------------|
| | | | |

4966



United Service Institution of India

Library

- * Books drawn by a member can be retained for one month and renewed once, provided no other member requires them.
- * New books must be returned within two weeks.
- * Not more than two books may be on loan at the same time.
- * Members are prohibited from transferring books to other members.
- * Members will be required to pay full price with penalty of any book lost or damaged by them.
- * Reference and Rare books are not allowed to be taken out of the Library.
- * Books are liable to be recalled when in special